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CANADA
PROVINCE OF NOVA SCOTIA
COUNTY OF CAPE BRETON

SDS CASE NO. 90-664

NOVA SCOTIA ENVIRONMENT CONTROL COUNCIL

POINT ACONI PUBLIC CONSULTATION MEETINGS

ELECTRICAL GENERATING STATION PROPOSAL

COMPLETE VERBATIM TRANSCRIPT

REVIEW COMMITTEE: Mr. James Harrison
Mr. Michael H. McGill
Ms. Shirley L. Nicholson

DATE HEARD: January 17, 1990

PLACE HEARD: Point Aconi, Cape Breton, Nova Scotia

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HEARING OPENS AT: 10:05 o'clock in the forenoon
on the 17th day of January, A. D., 1990,
at Point Aconi, Cape Breton County,
Nova Scotia.

MR. JAMES HARRISON:

Thank you all for being here. My name is Jim Harrison and I'll be Chairman of this public consultation meeting in Point Aconi. My colleagues here are Shirley Nicholson and Michael McGill, and we've been delegated by the Nova Scotia Environmental Control Council to hear your comments about the electrical generation station proposed by the Nova Scotia Power Corporation for the Point Aconi area.

My particular responsibility is to make sure that all of you who wish to make a statement or to ask questions are provided with that opportunity.

Now, just a few words about the events leading up to this meeting:

The undertaking was originally registered by the Nova Scotia Power Corporation on the 2nd of December, 1988, under the Environmental Protection Act, in the Statutes of Nova Scotia 1973. Then the Environmental Assessment Act came into effect on the 14th of July, 1989. And the Power Corporation, the Nova Scotia Power Corporation voluntarily re-registered the undertaking under this new Act on the 28th of July, 1989.

The terms of reference for the Environmental Assessment Report, as provided for under the Act and Regulations, were prepared and finalized with comments from interested Nova

Scotians.

Then, the Environmental Assessment Report was accepted and released by the Minister as noted in the Chronicle Herald newspaper ad of the 9th of December, with written comments invited by the 29th of January. The matter was then referred to the Environmental Control Council on the 11th of December, 1989.

Notices regarding the public meetings in this Point Aconi Community Hall were published on the 12th, the 22nd, and the 29th of December in the Chronicle Herald and the Cape Breton Post, and these notices ask that persons who wish to make oral or written presentations notify the Control Council by the 10th of January this year. People were then contacted by the staff and scheduled into mutually acceptable time slots. This is really where we are now.

The Environmental Assessment Act says that the Environmental Control Council shall:

- first of all, consult with the public,

- recommend to the Minister of the Environment approval or disapproval, or conditions which ought to be imposed on an undertaking as it proceeds or if it proceeds.

- we shall perform various functions and exercise powers that are conferred to the Council under that particular Act.

The Environmental Control Council has the power to either appoint or authorize the Chairman of the Council to appoint a Committee of Council to perform the functions and exercise any of the powers of the Council. And our Nova Scotia Environmental Control Council at a regular meeting on the 8th of November, 1989, authorized the formation of a three-person committee with myself, Jim Harrison, as Chairman.

Now in considering the format of these meetings, the Council decided that the provisions under Regulation 10(1) made pursuant to the Environmental Protection Act will be followed. That is, these public consultations will be conducted in a relatively informal manner, so the meeting procedures do not intimidate either you or this committee.

Our Agenda will be as follows:

The proponent, the Nova Scotia Power Corporation, will give a brief description of the undertaking and the environmental impacts considered.

Those of you who indicated that you wished to be heard will then proceed in the sequence arranged with you by the staff.

Before any formal presentation is made, you will be asked to take an oath or an affirmation.

Other members of the public will have an opportunity to comment as we proceed through the schedule.

Any questions that you have should be directed to the Chair, and we'll then interpret the question, if necessary, and redirect the question to the appropriate person for response.

All of the proceedings are being transcribed as you may note here, and therefore, we ask that you make sure to use the microphones, that you clearly identify yourself and your place of residence.

You will note that we have provided media representatives with work tables and we request that any interviews or questions by the media be conducted outside this meeting room. There is a small room at the back where this can be done. Also, we will allow if the media wish to take preliminary "shots" of the meeting, for these to be taken beforehand of the tables and the audience. And we ask that during the proceedings that the lights and cameras be shut off.

Now are there any questions anyone might have regarding the structure of the meetings?

Okay. We'll then proceed with the proponent's description of the undertaking, and the representatives for the Nova Scotia Power Corporation that you see there will proceed.

Now I would ask that the lights be turned off there, please?

MR. TERRENCE MacDONALD:

Thank you, Mr. Chairman. My name is Terry MacDonald. I'm Vice-President of Planning and Environment for Nova Scotia Power. We'll be making a few introductory remarks, basically summarizing what is contained in the Environmental Assessment Report. With me is Gerry Lethbridge, Vice-President of Engineering and Production and Osmundo Betancourt, Director of Environmental Policy and Programs.

MR. JIM HARRISON:

I said we'd swear in our formal presenters, so would you please put your right hand on the Bible. Do you swear the evidence you will give and about to present at this hearing shall be the truth, so help you God? If so, answer, "I so swear".

MR. TERRENCE MacDONALD:

I do. I have a few overhead slides to use during the presentation, and I'll be maybe wandering back and forth from here to the board to point to a few things.

Well, the first thing I would like to do is relatively quickly summarize our planning process. We begin in our overall planning process by defining objectives. Well, we begin by defining objectives and establishing criteria. From that, we move to an estimate of future customer requirements. We move to identifying potential resource options including demand and supply side. We assess environmental issues. We integrate the various resource options into plans, and we implement the most attractive alternatives. It's a cyclical procedure as you can see as depicted, and is an ongoing review on an annual basis of all relevant options.

Nova Scotia Power has a dual mandate. The first mandate is to meet the needs of Nova Scotia for electric service at an acceptable level of reliability in the lowest long-term cost. We have a secondary mandate which is to contribute to the socio-economic development of the Province.

We have basic planning criteria to assist us in making our decisions as we assess the various plans. We have reliability criteria that addresses our generation requirement. And in that regard, we use a 20 percent planning reserve which is common to all thermal based utilities in North America. We have transmission planning criterion which we call a single contingency criteria, which means that the system must be able to withstand any single contingency or loss of any single transmission line, for example, without causing a blackout of the entire system. That, too, is common with all utilities in North America.

On the distribution side, our criteria is one supply per customer. And if any second supply is required, then the customer must make a hundred percent capital cost contribution.

On the environmental side, our environmental requirements are dictated by provincial regulation, and we go through the various regulatory requirements, required of the various regulations for the different types of projects in which we are involved. Environment is the specific input into the design of all of our projects.

On the economic side we have a criteria that requires us to attempt to minimize total cost of operating the system over the long term.

On the financial side, we look at the impact of major capital projects on the early year rate impact to our customers, and these must be judged to be acceptable.

And on the socio-economic side, Nova Scotia resources are used to the maximum extent economically practical.

This is the slide where I've got to move away and use the pointer a bit. It's not very clear. What this slide attempts to indicate and perhaps there's too many numbers on it, but the spirit of it is very simple. We forecast a load requirement. We compare the installed generating capacity against the requirement and look at the deficiency or surplus as it may be. And what I will point to in a second is the fact that in 1993-'94 which is our fiscal year, is the year in which we require additional capacity and that additional capacity we are proposing be the Point Aconi unit. I'll just walk up to the slide and point to what I'm talking about here.

Generation capacity installed is 1989. By the year 1991-'92, our Trenton number six generating unit of 150 megawatt size will be on line. Our capacity will increase to 2139. Our load by '93-'94 we forecast will grow firm to 1860. We'll have a 20 percent reserve requirement on top of that 1860 which is 2232 which will exceed the then installed capacity of 2139 by 93 megawatts. That's the deficiency which we're forecasting in 1993-'94 and for which we require the additional capacity at Point Aconi.

The important thing to recognize in this slide, if you can see the numbers, is that we have a non-firm load on the system which is quite large. In '93-'94, that load will be 157 megawatts and that is a load that exists, is out there, is supplied on the energy side, but we do not plan any capacity to serve that load. So the net system requirement which is net, of the interruptable load is what we're attempting to supply.

Our energy resource options, as I indicated a moment ago, include both demand side which includes load management and conservation, and supply side which includes the addition of new generation, purchases, or modification of existing generation. All of this is addressed to the Environmental Assessment Report.

Our major requirements in '93-'94 are that we require sufficient capacity to meet our load, and that we require to maintain a provincial objective to not exceed 160,000 tonnes of SO_2. That is an objective that has been assigned to us by the Nova Scotia Department of Environment. And our forecasts are such that should we not engage in the emission control program which we have in front of us, we will exceed that 160,000 tonne figure in 1994. Thereafter, we will have some room to grow because the Point Aconi unit will remove 90 percent of the SO_2 from the emissions from the combustion of the Prince coal.

The Prince coal is about 3.5 to 4.0 percent sulphur on average. It is the highest sulphur coal that we consume and because of that high sulphur, the greatest contribution to emission reduction are had by cleaning the $S0_2$ from the Prince coal. The Prince coal is used in our units at Lingan and Point

Tupper and so on. As we use the Prince coal here at Point Aconi in the C.F.B., the average sulphur in the coal burned at Lingan, Point Tupper and elsewhere will decline. As such the emissions from those other stations will also decline, so we gain ambient benefits at Lingan and Point Tupper from the combustion of the lower blend of the Prince coal at those locations. All of this will come about because of the C.F.B. at Prince.

Our Environmental Assessment Report addresses the following issues, and Mr. Lethbridge will speak to most of them in a few moments. We address the atmospheric emissions of SO_2, NOX, and particulates and CO_2. We speak about ambient air quality, SO_2, NOX in particulates. We talked about the coal supply, the transport, the storage; the limestone supply, transport and storage and use; ash disposal, circulating water or that's the cooling water system; the fresh water supplied to the station; community issues, including fishing, traffic, noise and dust, as well as terrestrial ecology and aquatic ecology.

Before I hand this over to Mr. Lethbridge, I would point out that our most cost effective solution from an analysis of all the various options that are practical that we have before us, and addressing the requirement as well to reduce our SO_2 emissions, the addition of new capacity which removes sulphur from our highest sulphur coal, namely Prince, is preferred. The plant should be located near the fuel source, and of course, that has lead us to recommend Point Aconi in this next addition to our system. I'll now hand this over to Mr. Lethbridge.

MR. JIM HARRISON:

Please place your right hand on the Bible. Do you swear the evidence you are about to give this hearing shall be the truth, so help you God? If so, say, "I so swear".

MR. GERALD LETHBRIDGE:

I so swear. Mr. Chairman, members of Council, Ladies and Gentlemen, my name is Gerry Lethbridge. I'm the Vice-President of Engineering and Production.

I'd like to give you a little bit of history of how we arrived at this Circulating Fluidized Bed technology and also how we arrived at the Point Aconi site. As well, I will give a brief description of a basic thermal generation station, its inputs and its outputs, and that will be followed by a brief description of the Point Aconi site itself and the Circulating Fluidized Bed technology.

Now our interest in this technology stems from its ability to burn a wide variety of fuels, and we certainly do have that in Cape Breton. And as well, and perhaps more importantly, the ability of this technology to minimize to a considerable extent both of the precursors to acid rain, those being sulphur dioxide and oxides of nitrogen. Our interest heightened to the point where in 1982, we, in conjunction with the Department of Energy, Mines and Resources, built a fluidized bed test rig at Point Tupper and -- The test rig was built in 1982-'83 for the purpose of testing corrosion/erosion aspects in a fluidized bed environment. This program was successfully completed in 1985, and it also, of course, afforded us the opportunity of getting some valuable experience in the fluidized bed environment.

Now during the time that this program was underway, we also carried out a four phase program including technical feasibility of the fluidized bed project at the 150 megawatt level, economic feasibility, pre-engineering work, which included test burns at the Chatham plant in which we used Prince coal and local limestones. We also did limestone characterization tests. We did preliminary environmental work, and also included in phase three is the approval process. And, of course, that's where we are now. And if we're successful in achieving approval, we will proceed to the fourth phase with is the design, construction, commissioning, and operation of the C.F.B. plant.

Now in the third phase, in the pre-engineering work we also carried out a site selection process and we looked at four different sites, these being at Donkin, Lingan, Victoria Junction, and Point Aconi. We reviewed various elements in this assessment, such as, proximity to the sites of coal and limestone, access to the site, the environmental and social impacts of each of these sites, and also the economic comparison between the different sites. And after all this work was done, we concluded that the Point Aconi site would be optimal.

Now I'd like to move along to a basic description of a thermal generating station. You can see here that the furnace or the boiler is the crux of the process. We inject coal into the furnace. We pump water through a chemical or water treatment plant into the furnace. That coal is, or that water, I should say, is converted to steam which drives the turbine and the turbine is connected to the generator. The generator in turn produces electricity for our customers. Now in order to complete the steam cycle, all of the steam exiting the turbine has to be condensed back to water for recycle through the boiler. And we do this with a condenser, and we use relatively large amounts of outside water for that purpose. We'll see the water coming in and going out here, circulating water.

Now there are byproducts associated with this process and they are shown on the next slides. For instance, from the coal pile we have leachates. From the chemical treatment plant, there are waste chemicals. There are drains from the main power house. We have bottom ash and fly ash from the various sources there. We have to concern ourselves with the uptake of fish and other micro-organisms through the condenser, and also warm water effects on the aquatic environment. Insofar as the flue gas emissions are concerned, sulphur dioxide and nitrogen oxides, both precursors to acid rain and also CO_2.

Now in our more modern plants, those that have been constructed in the resent years, 1970 onward, for instance, the

Lingan Generating Station, mitigative measures have been used to control these byproducts. For instance, the leachates from the coal pile and the drains from the chemical treatment plant are taken to a waste water disposal system for treatment before discharging to the environment. The drains from the power house itself are taken through an oil trap where oil contaminated water is treated before being directed to the waste water treatment plant. Bottom ash and fly ash are disposed of in controlled landfill arrangements, and where possible we sell fly ash for cement replacement in the manufacture of concrete.

Now insofar as the C.W. system is concerned, fish capture is minimized by low velocity intakes. For the warm water in the discharge from the condenser, we use diffusion of the discharge through appropriately designed structures. And in some cases, and again in the case at Lingan, we have an aqua-culture system there where the warm water is used as a byproduct there.

Insofar as the emissions from the stack are concerned, we use washed coals where possible to minimize SOX. We use low NOX burners for controlling nitrogen oxides. Our collection efficiency on particulate matter is in the order of 99-plus percent. In our more modern plants, as I say, plants like Lingan, they are probably ten percent higher in efficiency than were our original plants built in the 1940's and '50's. And of course, that mitigates the impact of CO_2.

Our state of the art plant at Point Aconi, in addition to all of these mitigative measures, the Circulating Fluidized Bed will reduce 90 percent of the sulphur and 60 percent further reductions in oxides of nitrogen.

I'd like to move along to a description of the site. To orientate you, the pit-head of Prince Mine is shown here. The Point Aconi lighthouse is out on the point. Our site is located in this area on the ocean. The extension of Highway 162 comes along here, and the waste disposal area is immediately adjacent to and directly south of the plant site.

The plant site itself is characterized by the Unit One power house which is shown here hatched in red. The circulating water intake canal has its intake cap about 1.3 kilometers from the shore, we have a tunnel that the water is brought in through the condenser and discharged here back to the environment. The coal storage area contains provision for about 160,000 tonnes. The limestone is shown here; the storage area, about 50,000 tonnes of limestone.

All of the run off and waste water from both of those piles is directed to a run-off pond. The run-off pond directs its water then to a waste water treatment plant where it, in conjunction with drains from the plant, are treated prior to being rejected to the environment. The remaining portion of the water from the run-off plant is directed over here to the ash handling facilities or ash storage facilities. One of these silos is for bottom ash and the other one is for fly ash, and that water is re-used for the purpose of conditioning the ash. This depicts the stack. The substation is shown over here to the west of the plant. Units Two and Three, should they proceed, will be immediately south of Unit One.

Now, the coal and the limestone are brought in here, both by truck, and they are discharged on two ground hoppers. Both the coal and limestone are conveyed up conveyers to a transfer house. The coal goes directly into the powerhouse, into the bunkers, and the limestone goes to a limestone preparation plant before being brought into the power house.

I'd like to move along now to the final slide that I have, a description of the Circulating Fluidized Bed system. It consists of six elements, these being the feed stock system, coal and limestone, the main combustor, hot cyclone, the back pass, convective pass section of the boiler, particulate removal system and the bottom ash removal system.

And the operation of the plant, very briefly, involves injection of coal and limestone to the bottom of the combustor. Heated air from the air heater is brought into this yellow duct and mixes with the coal and limestone. The combustion takes place in here, and the products of combustion go up through the upper portion of the combustor. Some of the heat is transferred to these tubes that are located in this part of the system. The solid material is separated from the gases by the cyclone. The solid material, the particulate matter, is brought back into the bottom of the combustor, and that improves the efficiency of the system. The gas is passed out through the top of the cyclone down through what we call the back pass in which is located most of the steam generating tubes and, of course, this is where most of the steam is generated. The steam is then taken off, as we've seen, to the turbine. The gas is then passed out through the particulate removal system. There will be a bag house at Point Aconi, and the cleaned gases then go off to the stack. The bottom ash removal system consists of a screw conveyor with an appropriate cooling system which is used prior to discharging the ash to the bottom ash silo.

And that, Mr. Chairman, Members of Council, is our presentation. We are proceeding here with a state of the art project and we believe that we are using the best available technology to mitigate environmental impacts. Thank you.

MR. JAMES HARRISON:

Thank you. What we propose to do is go along with the next two presentations and have a break in the question period just before noon.

The next presenter will be Neal Livingston from the Black River Hydro Limited, here in Cape Breton. Neil, would you come forward please? Do you swear the evidence that you are about to present at this hearing shall be the truth, so help you God? If so, answer, "I so swear".

MR. NEAL LIVINGSTON:

I do.

There's just a few things I wish to check on before I start my presentation. I want to make sure that the Council has the information that I've sent them. Mr. Harrison, I just want to make sure that you've received the information we sent you for Trenton Six, the brief from -- and also something called "The Private Power Option for Canada." And I want to know that you received Bill Marcus' pre-hearing testimony for Point Aconi and also the brief which I submitted yesterday of Mr. Marcus' on Point Aconi.

Okay, there's one correction I need to make, which is that I'm presenting this talk -- There's a brief that we're presenting at this hearing and it's being presented by my company, Black River Hydro Limited and also the Ecology Action Centre of Halifax. I would wish that the official record of who's preparing this be changed.

My name is Neal Livingston, and I'm doing this brief on behalf of the Ecology Action Centre and Black River Hydro Limited. I'm specifically addressing, under the terms of reference of this Environmental Assessment Act, the 6th item under the terms of reference which have to do with the alternatives for Point Aconi. And the Environmental Assessment Council has been mandated to look into the alternatives to this plant, and should there be sufficient alternatives, to basically not approve the plant. We believe, quite simply, that there are very real alternatives which can be put into place immediately and that the Power Corporation has failed to properly go through the procedures to implement the alternatives to Point Aconi, and that these alternatives will both be good for the people of Cape Breton, the power consumers of Nova Scotia, and the people of Nova Scotia in general.

In preparing this brief, I've looked over quite a bit of material. This whole process really started at the Trenton Six hearing a couple of years ago when people, interested in small power production in Nova Scotia, intervened against that hearing claiming that the need for the plant was not approved. We did that before the Public Utilities Board. I would assume that most of you are aware that there was, again, the beginning of this kind of opposition to Point Aconi at the Public Utilities Board after the idea for this plant was filed. And the Premier of the Province changed the legislation regarding this plant in the Legislature last spring. I think it's very much an indication of the way that this project is going ahead and it's very questionable as well.

I probably think most of you are aware of the fact that the plant has already been commissioned and ordered, and I feel that that very much falls in the face of the proper procedures through which we can look into these matters. And I think that there is a responsibility to look at this plant, because we're claiming very directly, and I don't think it's something the Environmental Control Council can ignore, that the alternatives have not been explored. If the mandate is to properly explore the alternatives and that if this hasn't been done, then this plant can, quite simply, not go ahead. And there are a number of very, very good reasons for that and I feel that it could be very interesting.

This is the first environmental assessment hearing that we are having in this Province under the new Act and the Council's going to have an interesting problem here, because the points that we're putting forward are very clear in our brief. I think the Power Corporation has a problem here, too, because it hasn't done the work they're supposed to do at all regarding the proper alternatives. And in failing to do that, there's really no other choice except to make the plant not go ahead. And you can be sure that there will be opposition from both environmental groups and people interested in alternatives in this Province if the plant is given approval beyond this point.

I'm going to give you a series of preambles and then go into more detail. I've been trying to figure out how personally to look at this project. I've a five-year old son. It just so happens to be that he's picked up a book called "The Emperor's New Clothes" recently. I'm pretty sure most of you are familiar with that story and I can't help but see that that story is very relevant to this kind of situation. We've been given a situation by a Crown Corporation whose mandate is to serve the broad social and economic interests of the Province as well as supply electricity and yet they're only telling us there's one option. That's something the Power Corporation has continually told us over many years.

Now, over this decade I've had the opportunity, because I have the only small power plant that sells power to them in the Province, to see the bad side, to see the side of them which has not explored the options which many, many other utilities of North America and the Western World have done to great benefit to their people, and I've seen this as a terrible problem and I feel that every chance I have the opportunity, I express this to people.

We could now, in Nova Scotia today, have over a hundred megawatts of power coming from other sources but the policies of the Power Corporation on not developing a proper policy for other people to sell them power have been made in such a way as to completely stop this kind of development in the Province. It's a development that could include the use of coal, hydro, wind, wind farms, (We have a lot of wind in Cape Breton) and it's been a policy which has really hurt Cape Breton in particular, I think. Probably none of you know this, but one of the largest windmill manufacturers in North America wanted to come to Cape Breton to set up a factory here in Cape Breton to build windmills. And what they wanted to do with these windmills, besides sell them in the North American market, was to have a wind farm in Cape

Breton. It never happened because with all the incentive programs we have in Cape Breton for business, they couldn't sell their power here at a reasonable rate. They said, "Forget it." They went home.

The Power Corporation, in planning this project, seems to have ignored everybody except themselves, and I think it's one of the great problems of having a Crown Corporation like this in this Province. I mean, one of the things that shocked me through this decade is, how can we have a large corporation which within it has not provided within their own people any group of people to look and seriously challenge the group of people who want to be building large power plants? It simply hasn't been in that corporation. If it has, they've been chased out pretty fast.

This is a corporation which is an extremely large employer and it should be clear that my comments are directed at the management level of the Corporation and not the rank and file, because they do supply a product that's very -- reasonably reliable. Besides being the largest polluter in the Province, and they've increased their pollution quite a bit in the last ten years, they do provide a service reasonably well.

This is a plant which is going to cost $500 million, over $50 million a year in interest. It's an expenditure equivalent to about $30,000 per Cape Bretoner. The average household in Cape Breton has three or four people. In other words, it's $100,000, probably, the average expenditure. There's a lot of other things we can do with this money in Cape Breton.

So we're coming forward and we're saying that the alternatives haven't been done and we have to -- and the Control Council has to reject the plant. It's a hard decision, certainly, for a Control Council which has been politically appointed. But that's really not our problem, as the people. Because the job hasn't been done, it has to be rejected.

The other thing is that we've attempted to bring in an expert whose brief we're filing, William Marcus, who's been in Nova Scotia four times in the last two years and is still available on Monday. I've asked the Control Council to hear him on Monday in Halifax and I'm still appealing for them to hear him.

What we're talking about, these alternatives, is actually today the most important utility issue in North America, and it's an issue of looking into alternatives that the Power Corporation has simply ignored in any real fashion. I looked at their brief yesterday for Point Aconi and it's about three or four inches thick. And I could find maybe four or six pages that had something to do with the alternatives and they were all dismissed, really, out of hand, and it's sad, because all these things are very important. It's also sad that this Act doesn't provide for intervenor funding, which is why, really, I am giving an oral brief today. But we have been able to hire Mr. Marcus to write a brief on this thing.

Okay. So now I'm going to discuss in detail some of these points. Private power producers in Nova Scotia responded to a call for power, to supply power. The government decided that they would let about 30 megawatts come on the system. And in response to that 30 megawatts, over a hundred megawatts of proposals came in. This is only a first call for a proposals, there hasn't been one since. And Mr. Marcus, whom we've hired, has also suggested, with his experience in utilities in North America, that because the terms of reference was only 30 megawatts that some of the larger projects that could go ahead in this Province would not come forward in that call for reference. But we have 100 megawatts of proposals that have been formally proposed on the table before the Nova Scotia Power Corporation. What would you do if you were at the Power Corporation and you had 100 megawatts of proposals come in and you're planning your own 150 megawatt plant? Would you sit down and say, "Whoa! Look at what's come in! We've got something interesting happening here. We've got an alternative to this project that's going to cost the people of Nova Scotia $500 million just to start off the top. It looks like we might not need to build this plant." But instead what's happened is the Power Corporation has not in any real manner proceeded over the last year and a half with going through with those proposals. They're still saying, "There might be 30 megawatts out there, but we're not sure.", and they've decided that their project is more important than the projects that are coming in from everybody else.

It's really always the same story in my experience with the Power Corporation over the number years since we set up our small power plant and were paid an amount so that we lost a thousand dollars a month. And today the plant still doesn't properly break even and we're still only getting three cents a kilowatt hour when their own new plants are being valued at over six to seven cents. It's, unfortunately, one of the things that I see that's really wrong with our society. We're not all part of the same family. There's other societies where you can go to where we are all part of the same family when you want to sell power, but not here. Our power isn't their power. Electricity is not electricity.

So we have 100 megawatts before us. And the reason the other Power Producers Association formally isn't here today is because when the Premier of Nova Scotia cancelled the Point Aconi P.U.B. hearing and he met with the power producers after that, the Premier said: "You're out of this." He said, "If you guys ever want to build your power plants, you keep out of this from now on. You keep out of Point Aconi. You don't make trouble anymore." And we have a lot of businessmen out there who want to spend hundreds of millions of dollars building power plants. And I've talked to quite a number of them in the last two weeks since I've been working on this, and they're afraid to come forward. They say, "I might jeopardize my project. I don't want to do that. I want to get my project through first."

As small power producers we've always called for a policy that pays properly, where there's no favoritism because of who you are or what your politics are. And yet today, from my understanding, the Nova Scotia Power Corporation is talking in the background in the absence of having a proper policy with people who are known supporters of the Government and their Party, so that their projects come first.

This is always the worst scenario that any utility consultant (Bill Marcus for instance) has always told us. He said, "We might have a bad scenario come forward in Nova Scotia. We might have favoritism in some projects over the other and we have always as small power producers called for equality." And you can see there's interest out there.

"Conservation and Demand Management". I'll deal with load forecasting first. One of the things we found out at the Trenton Six project was that the Power Corporation's -- by hiring experts, we found that the Power Corporation's estimates on the growth for power in Nova Scotia were questionable and we've detailed this in the brief. (If anybody wants a copy of this brief, I'll give it to them today, that doesn't already have it.) We've found that they've made certain mistakes in estimating the need for power in their load forecasting and these mistakes are -- add up to quite a number of megawatts.

In the Trenton Six Hearing, we had an interesting circumstance. What we did was, the Power Corporation at the Trenton Six Hearing filed figures which said that their peak loads over the next ten years, approximately, were going to be "X", and they listed their numbers. Our consultants got information out of the United States, where the Power Corporation was also filing numbers and the numbers were different and again the numbers at this hearing are different. Maybe they're accurate, maybe they're not. But the process has not been proper in forecasting load. There are a number of problems with that. And again the Power Corporation has not adjusted their methods to be the top methods because they don't like dealing with other people and they don't like dealing with criticism and it's a problem. But if the load forecasting is incorrect, then the need for Point Aconi isn't there and our comments on the load forecasting are quite scientific and accurate.

"Conservation." Utilities in North America, many utilities, have adopted conservation methods. A dollar saved, a kilowatt saved is a far more efficient way of spending money than building new plants.

Now, this assessment panel isn't really mandated to look at whether or not this project is an economic undertaking. That's what the Public Utilities Board is for when given the opportunity. But you can't ignore just what the Power Corporation has done. That significant savings in energy can be put into place by not encouraging electric heat, which is what the Power

Corporation continues to do, again; in fact, their need to build a new plant is a lot based on electric heat. Everybody goes home at the same time, like, to turn everything on at the same time and if they encourage excess use of electricity, we need to build a new plants.

In other jurisdictions, utilities of North America, they have adopted conservation practices. There are rebate programs and financial ways of encouraging people to get off electric heat or not build with electric heat. They encourage large office buildings with rebate schemes to put in much more energy efficient lighting. It saves megawatts. They encourage people through the same kind of programs to buy more energy efficient appliances. They encourage people to have their homes weatherized by paying for part of it. And all of these things save power and there are programs that are not "hoity-toity". There are things that are in place in other areas. The Power Corporation decided that's not good for Nova Scotia. They've ignored that and they haven't put those in place and they've had a lot of time to look at these things. At the very least, we suggested it three years ago at Trenton Six. Demand meant jobs. If you're going to work on conserving electric energy, there is work there. There is a lot of work there.

"Pollution." This plant, when built, puts out 2.4 million kilograms of sulfur a year and it's going to put out 1.1 billion kilograms of CO_2, carbon dioxide.

I found out yesterday or two days ago, that Sweden is going to allow no more increases in carbon dioxide pollution, period. They're going to have to find other ways of dealing with the pollution from carbon dioxide.

This plant is being proposed to us as being a clean plant, but there's also a lot of ash and waste that's going to come off the plant. If you have alternatives to pollution and the alternatives are the small power options and conservation alternatives that don't, in general, produce sulfur and CO_2 or do much less, then you've got alternatives.

One of the major problems I have with this plant, is that we're going to be buying this technology from the Japanese and spending a couple of hundred million dollars doing it. We, in Cape Breton, Cape Breton Development Corporation, have developed an alternative fuel made with coal called carbogel which is an appropriate technology, an appropriate fuel to be using instead of fluidized bed combustion. We've got the patents here. The only other place that has the patents in the world is Japan. So we're head to head in competition with Japan for this source of fuel.

What we're doing by buying a plant from the Japanese is we're putting carbogel on the back burner. Devco's already down-graded their carbogel part of their operations. So we could be spending the money in making the jobs for Cape Breton, building a factory for this carbogel, rather than paying the

Japanese hundreds of millions of dollars.

Why didn't they consider this? I can't tell you but I can tell you a little bit about it. What we do with carbogel is you can take coal and crush it and blend it with water. (This is the unscientific description). You can dry it and when you dry it, a lot of the impurities come off it, like the sulfur. And then you powder it and mix it with water and it burns like oil, heavy oil.

If you want to cut back on the use of -- the pollution, we've got a plant in Dartmouth called Tufts Cove, which emits quite a bit of sulfur pollution. We could build a carbogel factory in Cape Breton, lots of construction jobs, lots of people working there. "This is what Point Aconi's about.", says the Premier. It's about Economic Development in Cape Breton. And we can burn the carbogel down at Tufts Cove. There's no need for the power, particularly from Point Aconi, immediately. So if we want to create development, we should be using carbogel. By burning carbogel down in Tufts Cove, we're going to be producing no more pollution and, in fact, we'll be probably be producing less pollution than the high sulfur oil the Power Corporation is now using there so we're cutting back on our emissions.

As well, if we want to make it even cleaner, we can scrub the plants, the Lingan's in Cape Breton, and that's going to make jobs for Cape Breton. If we need to scrub Tufts Cove, we can scrub it. So we have the potential with another fuel, that we have patented right here, to have our needs met.

As well, there's something called, Combined Cycle Generation and it uses again, heavy fuel oil -- heavy oil, which is what carbogel is essentially. And we could be building a combined cycle generation plant when we need it, possibly several years down the road, not today, in Nova Scotia to burn this stuff. That's a competing technology. Now they're building a large plant in Hawaii using fuel oil and the process through which we've gone through here for the Power Corporation hasn't brought us to that point. They haven't decided that that technology is ready.

I think one of the things inherent in Mr. Lethbridge's talk, was that in '82 and '83, they were looking at fluidized bed. Well, the world's changed since then, and technology's changed since then, but their mind has become fixed on a certain way of doing it and it's not the right way.

One of the things we're also going to do build a large transmission line, a hundred to $150 million. Well, if we were producing carbogel in Cape Breton, we could be shipping the fuel down to a plant where the big loads are, down in Halifax, and they could be building the combined cycle generation plant there, if we have the jobs here. The process of shipping electricity across Nova Scotia is one that is not particularly environmentally great. Building large power lines isn't great for the environment.

So there are a number of alternatives to building Point

Aconi. They're all alternatives which are real, they're technologically feasible, they're on the plate of the Power Corporation but they haven't been capable of looking at them properly and that's where the Environmental Control Council comes in here.

I'm going to quote you a little bit from our brief. It's not really possible for me to read it. I'd bore you all to death.

> Point Aconi is at very least deferable for several years, by more economic and environmentally sound alternatives.

Let's talk about what we could do with the 500 million in Cape Breton that we don't need to spend for a few years. What would it be like to spend 500 million in Cape Breton? I live in Cape Breton, rural Cape Breton. We have problems, same as the industrial area. We have high unemployment, our schools aren't great, our roads aren't great, we don't have community facilities that are very good compared to, let's say, Halifax.

If the Power Corporation is supposed to be serving our broad social and economic interests, one of the things they could be doing is encouraging, you know, our standard of living. Rather than spending hundreds of millions of dollars building a power plant, there's a lot of other things that anybody in Cape Breton would have on their "wish" list and at $30,000 per capita, it's the kind of things that we should be having. It's very unfortunate that the people who determine the way we develop our economy and where our public money is going aren't looking at what a lot of our real needs are in Cape Breton and all of those needs involve jobs.

The Solar Energy of Canada's Vice-Chairman, Mr. Peter Allan, (He has a business called "Thermodynamics" in Halifax, one of the largest solar businesses in Canada, now in Dartmouth.) he was testifying before the House of Commons Standing Committee on the Environment in December. He said that if you built a home and want to heat it electrically, it costs you personally to install it a couple of thousand dollars. The Nova Scotia Power Corporation has to install about $60,000 worth of plant. They have to have their factory sitting out there ready to supply you. At the cost per kilowatt hour that they're building Point Aconi at, it's about a $60,000 investment. It's much cheaper to go with the alternative, put in an oil furnace. That can even be subsidized as part of that. Transmission lines cost money, too.

(This report that we've put in -- because I've covered in my own way, my own words, I guess, most of the points.

"Conclusion." The Environmental Control Council should reject the Point Aconi application at this time. While Point Aconi may be a reasonable generating option at some time in the future, and I would add, we don't know because we haven't looked at the Combined Cycle generation, the Carbogel options, the small power options properly, we're not sure if it's even a good option in the future. It is not needed now, and other environmentally preferable options are available.

The following findings are compelling:

1. N.S.P.C. has overstated it's demand forecasts.

2. Energy efficiency investment is an alternative to Point Aconi which is available in relatively large quantities, environmentally superior, having no emissions and is economically and financially preferable to Point Aconi One. N.S.P.C. failed to consider this alternative properly because of its policy that eliminating all rate impacts on non-participants is more important than reducing energy expenditures by Nova Scotia consumers.

3. Discouraging the use of electric heat is an alternative to Point Aconi, which could reduce demand by 60 to 80 megawatts by 1993, and over 100 megawatts by 1990's, attach that to 100 megawatts, at least, of small power available.

4. It is environmentally superior to both Point Aconi One and Two alternative sources of winter power from oil-fired power plants with less emissions of both sulphur and carbon. It is clearly financially preferable to Point Aconi One and appears to have economic benefits when compared to electric heat. N.S.P.C. has completely failed to consider this alternative.

5. Private power is an alternative which could reduce the need by at least 30 megawatts by 1993. One hundred megawatts of interest has been expressed. Private power is environmentally superior to Point Aconi One with few sulphur emissions and less or no net carbon emissions. It is economically equivalent to

Point Aconi, but financially preferable. N.S.P.C.'s consideration of this alternative is inadequate. I've mentioned the Combined Cycle and Carbogel.

6. In the event that -- If we want to cut down sulphur further, there are the existing plants which the Government's promised to put pollution control equipment on, which is good.

By rejecting this application as not urgently needed and deficient in it's consideration of alternatives, the Council would be sending the appropriate message to N.S.P.C. that it needs to develop better plans for the Provinces' power needs. N.S.P.C.'s past practice has been to make piece-meal applications for new power plants every year, as this application does.

N.S.P.C. needs to step back and with input from the Government, this Council, the Public Utilities Board and most importantly the public, develop an integrated plan which melts together energy efficiency investments, private power, sulphur reduction at existing coal and oil plants and new low sulphur coal or oil generation on an environmentally sound and economically efficient basis.

I have one other letter to read which came to the Ecology Action Centre a couple of days ago. It's very short. It's from a professor of Geology at Acadia University, named Gary Yeo. He says:

> I do not consider myself to be an expert on coal geo-chemistry, but I have done some work on the coal deposits of the Stellarton area for the Geological Survey of Canada. In the

> course of this, I came across a recent report on the chemistry of Sydney coals. The analysis are very accurate and the data rather alarming.
>
> Nova Scotia Power's argument that a coal fired fluidized bed combustion facility is the best way to meet future energy needs is not convincing. What disturbs me more than the shaky economics and crude politics of this decision is the danger posed by high concentration of metals known to be toxic in the ash from Sydney coals. I understand that this will be put into a land-fill. I do not want to live near such a site. If this plant were to be build near Halifax, there would be quite an outcry.

I'm going to put that in. I would submit that.

I would just restate that, you know, the Power Corporation has failed the test in this project and in their proposing and under the terms of reference. Their failures are quite clear and the alternatives are before us and they're quite real and the Control Council, I feel, really has no other opportunity except to reject the plant because of that. The Power Corporation had to make a case to prove that the alternatives aren't there and they haven't done it.

Are you going to be asking me questions now?

MS. SHIRLEY NICHOLSON:

Yes, I have a question.

MR. NEAL LIVINGSTON:

I guess I'm going to be asked questions at 11:30.

MR. JAMES HARRISON:

Thank you, Neal for a very excellent presentation. We appreciate it. The next presenter is Aaron Schneider, professor at the Centre for International Studies at the College of Cape Breton. Do you have a written presentation, sir?

MR. AARON SCHNEIDER:

Yes. You'll have to correct the billing here. I don't enjoy the status of "Professor" so please strike that from the record. The rest of it's correct.

MR. JAMES HARRISON:

Do you swear the evidence which you are about to present at this hearing, shall be the truth, so help you God? If so, answer, "I so swear."

MR. AARON SCHNEIDER:

I so swear.

I'm Aaron Schneider. I'm an associate member of the Centre for International Studies at U.C.C.B.

First, I want to make a couple of comments about the hearing in general and then I want to talk about a larger environmental context for this project. I must protest the restrictions placed upon the hearing. I'm aware that a report containing expert criticisms of this project has been disregarded by the curtailment of the scrutiny of the Public Utilities Board. The timing and cost effectiveness of the project has been seriously questioned in light of the power corporation's present debt of $1.6 million. The burden on the taxpayers from the $500 million in loans needed for the project could be $1 million a week.

I am also aware that recommendations have been made to defer this project in favour of investments in energy conservation and purchases from private power producers. These could easily generate many more jobs and direct benefits than those likely to come from this project. These are better and cheaper alternatives and would allow more time to fully consider both the local and global consequences of this project.

Another compelling reason to delay the approval of this project is that it would allow time to consider the recommendations of the Standing Committee on Environment's Study on global warming which is still being conducted. Until their report is presented to the public, there is no wisdom in proceeding with this project which will contribute further to the "greenhouse effect". Four hundred thousand tonnes of coal burned each year at Point Aconi will produce almost four times that amount of carbon dioxide or about 1,470,000 tonnes of carbon dioxide.

Please consider the global context of such a policy and incorporate its long-term environmental costs against the relatively short-term benefits.

Climate models revealed at the Toronto Conference on the Changing Atmosphere, during the long hot summer of 1988, predict that the earth will warm 1.5 to 4.5 degrees celsius before the year 2050. Only one degree would make the earth warmer than it has been for 120,000 years. As this was being discussed, grain surpluses dwindled and dust storms stripped 15 tonnes of top soil per acre from American wheat fields in the warmest of the past 130 years. The four previous recorded years all occurred-- Excuse me, the four previous record years all occurred during the past, this past decade.

The "greenhouse effect" was first described in 1938 by a British air pollution specialist, G. S. Callender, who suggested that fossil-fuel burning must be increasing the carbon dioxide in the atmosphere. Carbon dioxide lets sunlight through but slows the rate at which heat radiates back into space, hence its name. Since that time, other gases such as methane, ozone, nitrous oxide, water vapour, and chlorofluorocarbons have also been recognized as greenhouse gases. During the last ice age, this atmosphere contained about 180 parts per million of carbon dioxide. In 1850, one hundred years into the Industrial Revolution, the level was 275 parts per million and by 1985, it was 345 parts per million. Predictions for the mid-21st Century are 400 to 600 parts per million.

I want to refer to a fact sheet here put out by Energy Prob of Toronto. Canada is third in carbon emissions per capita in the world, after the United States and the German Democratic Republic, both very heavy coal users. Canada's per capita emissions are more than twice those of Western Europe or Japan, more than 16 times greater than those of the developing world. The main reason is that Canada is one of the most energy intensive nations in the world.

Canada's carbon emissions from power generation in 1980 was 14.7 percent of its total carbon emissions from power generation and in 1985, it was 21.6 percent power generation as a source of carbon emissions.

While there has been some frivolous speculation about moderation of our Canadian winter, the more likely outcomes appear to be catastrophic on a scale described second only to nuclear war. Climatologists predict changes in traditional weather and climate patterns, and in ocean currents. They predict that sea levels may rise as much as 1.5 meters by the year 2050 from thermal expansion of sea water and melting of polar land ice. This could devastate the costal regions which are home to half of the world's people, the deltas of the Nile, the Ganges, the Mekong, the Yangtze and the Mississippi will be inundated. Holland will be under water and the Maldives will disappear. Charlottetown will be a flood. World wide, the encroaching oceans will destroy major ports and drainage systems, locks and canals. Salt water will intrude into rivers and aquifers, contaminating drinking water for millions.

Global warming will change precipitation patterns in every region of the globe. It has been predicted that the flow in the upper Colorado River basin will drop by two-fifths and that rainfall in the U.S. grain belts will decrease by 40 percent. While lakes, rivers, and watersheds disappear in some areas, others will have heavier rains forming new topographies in the resulting floods.

The effect of higher temperature and carbon dioxide concentrations will also affect the yield and reproductive capacity of cereal grains. Forests will be more vulnerable to pests, disease, and forest fires. The Bellagio report, from the United Nations Environmental Program meeting in Italy in the fall of 1987, predicts large scale forest die backs before the year 2100 with the mass extinction of species and the loss of millions of acres of forest, mostly in the middle latitudes.

The disruption of agriculture in previously fertile areas is predicted to create hundreds of millions of environmental refugees trekking northward in the greatest mass migration imaginable. Canada's population could swell from 20 to 200 million in 40 years with little consolation from an improved agricultural climate in the muskeg. In fact, warming in the muskeg and permafrost regions in the North is predicted to release large amounts of methane, which is a more effective greenhouse gas than carbon dioxide. It is this positive feedback instability that makes anything we do to increase global warming so much worse. Our carelessness may be multiplied by natural processes far beyond our imagination, no less our ability to control them.

It is in this context, Ladies and Gentlemen, that we should consider the Point Aconi proposal. Worse than the bad news which I have repeated for you today is the intransigence of government and its inability to react seriously to this threat. Federal funding for energy conservation and renewable energy programs have been cut 93 percent since 1984. Environment Minister, Lucien Bouchard, acknowledged that global warming threatens human survival, yet Canada's energy ministers not only fail to accept the inadequate target of a 20 percent decrease in carbon emissions in 15 years, they announced a probable increase of 20 percent over the same period. And now Nova Scotia is planning the construction of a 165-megawatt coal powered generating station to pump another 1.5 million tonnes of carbon dioxide into the atmosphere every year. Where is the Province's commitment to sustainable development as proclaimed by our Minister of Environment, John Leefe, at the Environment and Economy Conference last October? The atmosphere is not sustained by this project.

I appeal to your sense of honesty and responsibility, not only to Nova Scotians, but to the people of this planet, most of whom do with considerably less energy than ourselves. Wait and consider alternatives. Wait and consider the Standing Committee's report on global warming. Wait and consider what the future is worth for your children and grandchildren compared to this project, an ill-conceived and disastrous example from a Province in a Country that can afford to lead the environmental conscience of the world.

Thank you.

MR. JAMES HARRISON:

Thank you. Thank you very much for another excellent presentation, sir. We will have a short break, I'd suggest about five minutes, and then come back for questions that anyone might have of the presenters.

HEARING RECESSED AT: 11:17 a.m., AND RECONVENED AT: 11:31 a.m.

MR. JAMES HARRISON:

Will you take your seats, please, and we'll proceed with questions. I would remind you again when you come to the microphone, please identify yourself very clearly, so we have a record of this.

Okay. Now who's going to shoot the first question.

MR. RICHIE MANN:

Thank you, Mr. Chairman. My name is Richie Mann. I'm the Environment Critic for the Nova Scotia Liberal Party.

Mr. Chairman, we are hearing today lots of questions, and we will hear lots of questions, I assume, when, and what if, and why, but I believe as you pointed out in your opening remarks, this is the very first Environment Assessment Public Hearings in the Province of Nova Scotia. And so I believe it's very fair to say that the Environmental Assessment Act is on trial today.

Mr. Chairman, on January the 10th, one week ago today, I forwarded a letter to you, and I have copies of that letter here today. I would like to -- It's a brief letter, and I would like to make quite clear the intent of the letter.

> In view of the fact that the Nova Scotia Power Corporation has already signed a construction contract with Mitsui (sic) for the building of the Point Aconi Power Generating Station, will the Environmental Control Council seek the contract details to ensure itself and the Nova Scotia public that any recommended conditions which may be attached, resulting from the Environmental Assessment Hearing today, can be accommodated within the terms of that contract?
>
> To allow no room for confusion, will the contract terms between Mitsui (sic) and the Nova Scotia Power Corporation be put on the table at the hearing so we can judge whether the hearing itself will be meaningful.

Well, Mr. Chairman, I did not receive a response to that letter, but I have seen a copy of your response just moments before the hearing began today. And I -- And you will correct me, I'm sure, if I'm in error on this, but the -- you basically explained the process, and according to the Environmental Assessment Act, the responsibility to ensure that conditions are met, which may be recommended, lay with the Nova Scotia Power Corporation, and that they have the responsibility to ensure that conditions are met in contracts which have already been signed and which will be signed.

Well, Mr. Chairman, I don't pretend to be an -- to have expertise in contract law, nor in Japanese business practice, but I am certainly not convinced that the details of the construction contract will allow for conditions to be met in that contract that's already been signed, or conditions which are recommended today.

Now my question, and I understand that the -- this may not be within your mandate as an Environmental Control Council, because your job, as I understand it, is to report to the Minister and to make recommendations to the Minister of the Environment. But in light of the fact, Mr. Chairman, that the construction contract has been signed, can the Environmental Control Council ensure the public of Nova Scotia -- Can you give evidence to convince us that this process today is not merely an exercise in public relations by the management of the Nova Scotia Power Corporation and the Department of the Environment, yes, necessary to comply with the Environmental Assessment Act, but also in this case, a sham? Thank you, Mr. Chairman.

MR. JAMES HARRISON:

I don't really know what you mean by a sham, but you know the process. You said you've read the Environmental Protection Act and Regulations -- Environmental Assessment Act and Regulations and you know the mandate of the Environmental Control Council, which is to look at the environmental aspects of this particular project. Now if the project is approved by the Minister, then it becomes the responsibility of the Department of Environment to make sure that any provisions of the contract and the fulfilling of the contract and the equipment meets the approve -- meets with the approval of the Nova Scotia Department of the Environment.

MR. RICHIE MANN:

I guess very simply the question is, are -- is the Environmental

Control Council satisfied that if changes -- recommended changes are -- If you recommend changes to the Minister of the Environment and can the -- Have you satisfied yourself that the Nova Scotia Power Corporation can change or alter signed contracts to comply with those changes?

MR. JAMES HARRISON:

I'm not aware of what you mean by changes, but as I said, it's our responsibility to report to the Minister and give him our recommendations as to whether the project should be approved or should be not approved. The Minister can take our word for it and either follow it or not follow it.

And as far as the contract for business, as I stated if the contract has been signed, the provisions for the fulfilling of the contract and meeting the requirements under the Environmental Protection Act and any provisions that might be imposed upon the -- any additional provisions that might be imposed upon the Nova Scotia Power Corporation becomes the responsibility of the staff of the Nova Scotia Department of the Environment, and not really the responsibility of the Environmental Control Council.

Any other -- Anybody else have a question here? We've got through the first -- Yes, sir. Would you kindly identify yourself?

MR. WES STUBBERT:

Yes, sir, I'm Wes Stubbert, District 20 Councillor for Cape Breton County, and I would like to ask you a couple of questions and make two or three comments, if I may, on the presentations having been made.

I'm particularly interested in the Black River Hydro Limited and the Environmental Council's approach in which they said that there are 100 megawatts of power, I believe, that could be generated alternatively to the power plant being proposed, but I haven't heard in what manner. We've heard when the environmental -- or when the energy crisis came on, we heard everything from horse manure to chicken manure to hay seed, and just about everything you could mention being possibilities of generating power, fuel for gasoline and so on. But very few of these projects and possibilities have come to fruition or have been proven. The Black River Hydro gentleman mentioned a large plant may have come here and built windmills to generate power. Well, we've had a lot of wind here in Cape Breton. A lot of plants come here, and saw the wind blow through them as they closed up and left with millions of dollars down the tubes, but they didn't see much result from them. So these presentations have no basis in fact or proof, as far as I'm concerned, that these are, in effect, would be effective if, in fact, they were to be given the go ahead.

I'm sure we'll all concerned with the environment. And certainly coal -- the coal mining on Cape Breton Island has been the life blood of this Island for over a hundred years. And the -- perhaps they spoke about the need of the power, if, in fact, it was needed at all. And I don't think there's any doubt that even with our tremendous down turn in the economy recently with everything being shutdown, there are still a great many homes being built. There are businesses going up and so on that need power. When you look at Prince Edward Island, you'll see that they have no power of their own to speak of. They pay the highest rates in the country and they're at the mercy of the importers or exporters who sell power to them. I think there is a great market for power in the New England States. When we talk about Provincial co-operation and unity and Meech Lake accords and so on, but yet some provinces refuse to give Nova Scotia wheeling rights on which power could be transmitted into the United States, and thereby creating a great market and great industrial development.

They also mention the fact that schools were not great in some areas and roads were not great, and not coming, and would stay that way, I'm afraid, for a very great length of time if we do not have such things as coal-fired development, coal mining continue and so on, because there is no alternative. They have tried industrial parks. They have tried all kinds of grants and so on, and the only industry that sustains Cape Breton Island with any meaningful wage income and so on so that families can be fed and educated and so on is coal mining.

With regard to the comment that they wanted to bring in some wizards from California or somewhere to tell us how to do this, and they didn't have time to appear. It was known for a good many months that this hearing was to be held, sir, and anyone wishing to appear here had -- certainly had ample time to do so.

Now while Cape Breton Island has a very small industrial base compared to the North American Continent, Cape Breton coal-fired plants have received more attention and regulation than have catastrophes, such as, oil spills along the coastlines, explosions, such as, the Bowphal (sic) disaster in India didn't receive near as much attention as the small coal-fired plants are receiving in Cape Breton. And I suppose if it was in some other part of the country, it would be fine.

It's important to note that -- talking about the coal-fired plant, that fifty percent of our current pollution is imported from the United States and drifts in across on the air currents to which we have no control. And if the carbon monoxide and lead and so on from automobiles and the fifty percent pollution coming in from the United States and hydrocarbons from these spray cans we use constantly (And some have been eliminated, many others have not.) were all eliminated, I think our pollution problem would be very small indeed.

The opinion being given that nothing is being done on Cape Breton Island to control pollution. Well, I take strong exception to that because we have suffered greatly on Cape Breton Island for that very reason. With the closure of the Sydney Steel Plant from 4,000 employees at one time down now to about

750 with an electric arc furnace, no longer burning coal or anything else, no longer giving emissions of any kind with regard to fall out and so on in the Sydney Area. The treatment of the tar ponds which will greatly remove any number of carcinogenics from that pond and from the waters of Cape Breton. And with the elimination of the plant that produced the tar there, the coke ovens, we lost great numbers of jobs, hundreds and hundreds and thousands of jobs. And we paid that price for pollution, in order to control pollution and to eliminate the dangers inherent in that operation, and in the same process we gave up about two thousand jobs.

And in closing, Mr. Chairman, I would think that at some time people would think of the environment of the stomach and of the mind. We look around the world and we see countries with very little or no industry and we put on all kinds of drives and so on to raise food to help feed these people and rightly so, but in a lot of areas, they don't much problem from industrial pollution, but they have a great deal of problems with starvation. And I think it is incumbent upon governments and so on not to eliminate the industry, but to eliminate the pollution and to bring in the technology, of which there is a great deal available now, to treat coal fired plants or any other plants so that they will be clean. The industry, you know, it seems to me it's like the old saying, if a messenger brings a bad message or an unwanted message, kill him. This is what appears to be going on here with some of these people. The industry is dirty and needs to be cleaned up, so shut it down. Don't try and correct it to keep these people working.

We have people here under great mental stress, losing homes, don't know how they're going to feed their families in many instances, and you know, we have political people stand up here and wonder what we're going to do about the environment and what corrections can be made. What are we going to do about the people who, yes, commit suicide and so on because of the frustration and the great pressures upon them with the loss of their families. Just recently with Via Rail shut down, in the interviews you can see the strain in the faces of those people wondering, "What am I going to do for my family? Where am I going to go?". Those are some of the concerns that should be addressed, as well as the concern about the environment, Mr. Chairman. Thank you.

MR. NEAL LIVINGSTON:

May I respond to the points which were directed at me.

MR. JAMES HARRISON:

Thank you, sir. I was expecting a question. I didn't realize you were going to make a presentation. Do you have a question, Neal?

MR. NEAL LIVINGSTON:

I just wanted to --

MR. JAMES HARRISON:

We don't want to really get into a debate here.

MR. NEAL LIVINGSTON:

I wanted to respond very quickly in less than one minute to --

MR. JAMES HARRISON:

I beg your pardon?

MR. NEAL LIVINGSTON:

I just wanted to respond to something very quickly that he said.

MR. JAMES HARRISON:

Very quickly.

MR. NEAL LIVINGSTON:

I spent quite a bit of my brief talking about the ways that we can use coal in Cape Breton, and did not ever suggest that we shouldn't make use of the coal. We can put scrubbers on the existing plants and we can make use of coal technologies. Our expert even says that two or three years down the line, Point Aconi, when we look at the alternatives, might be the right one, but we have to look at the other coal technologies as well.

I also know of a plant in the United States somewhere that burns almond hulls so it's not -- we shouldn't think that there aren't alternatives as well. And the cost savings are enormous. If people are having problems and we need more money in Social Services, if we're saving three hundred million dollars by implementing conservation methods rather than building a power plant, I'm very clearly saying we should be using that money here in Cape Breton.

MR. JAMES HARRISON:

All right. I hadn't intended this to be into a debate right now. We're open for questions, so anybody else with a question of either -- any of the presenters?

MS. SHIRLEY NICHOLSON:

Neal, I'll address my question to you. You mentioned a letter from Mr. Yeo, and you seemed to agree with what he believes. Was there no way that he could have been here today?

MR. NEAL LIVINGSTON:

To answer very simply, I was simply asked by the Ecology Action Centre yesterday to read that letter. I had no contact with Mr. Yeo and don't really know anything about him. I just thought it was an interest -- I personally thought his comments were interesting about the waste side which I didn't address, and I think one of the other speakers this afternoon may be addressing the waste.

MS. SHIRLEY NICHOLSON:

I guess the reason I brought it up is that I think that it could have been relevant to the hearing here, and it's a shame that we couldn't have had that information -- that this Board of Hearing could not have had that information to consider when we're doing our recommendations.

MR. NEAL LIVINGSTON:

My understanding from Mr. Leefe, and it's similar to our request that you still hear Mr. Marcus, is that my understanding is you have all of the financial wherewithal to bring anyone in who you'd still like to hear at any other time. That's what Mr. Leefe wrote me last week.

MS. SHIRLEY NICHOLSON:

Yes, I've read -- I've read a copy of that letter. Thank you.

While I'm here I would like to address a question to Mr. Schneider. Is he here -- still here?

MR. AARON SCHNEIDER:

Yes.

MS. SHIRLEY NICHOLSON:

Mr. Schneider, you mentioned a report from the Toronto Conference. Is that who the report is going to be from? You mentioned a report --

MR. AARON SCHNEIDER:

The Toronto Conference on changing atmosphere.

MS. SHIRLEY NICHOLSON:

Yes. Now are you familiar with this publication, "The Heat Trap"? It was published in November of 1989, and it was done for Friends of the Earth. Are you familiar with that?

MR. AARON SCHNEIDER:

I haven't seen that one in particular, no.

MS. SHIRLEY NICHOLSON:

All right. Well, I've taken the time to read it because I think there's some very important information in it, and it relates to what you were talking about, this study. And I'll just read quickly one paragraph and then I'd like your comment on it. It says:

> Recently two analysis of the carbon dioxide intensity of the update scenario have been carried out, one by Friends of the Earth, and one by the Sustainable Society Project at the University of Waterloo. Both analysis agreed that the carbon emission implied in 2,005 in the update scenario corresponded to 19% less than in 1978, very close to that considered necessary and achievable by the Toronto Climate Conference.

Do you want to see this before you comment?

MR. AARON SCHNEIDER:

Well, I haven't seen this before, and it'd be very hard to comment without seeing the study from the University of Waterloo and reading it, but this is the first statement of this kind I've ever seen. And most --

MS. SHIRLEY NICHOLSON:

(short question put but inaudible.)

MR. AARON SCHNEIDER:

To me it is. And most of the things that I've seen have said quite the opposite, and I think that seems to be the general impression of most -- most atmospheric scientists.

MS. SHIRLEY NICHOLSON:

Well, it might be helpful to obtain a copy of that --

MR. AARON SCHNEIDER:

Yes, I'd like to see it, but --

MS. SHIRLEY NICHOLSON:

So what I'm suggesting is that it might be helpful for both of us to obtain a copy of that report.

MR. AARON SCHNEIDER:

Yes, it certainly would.

MS. SHIRLEY NICHOLSON:

I would like to direct a question to Mr. Lethbridge. I noticed in your presentation this morning that there has been a change in the original design in your active storage pile for coal and limestone. In the original design they were across the road, were they not, because I had a concern that when you were transporting coal from your active pile that you were taking it across the road which would cost -- cause dust emissions. Would you like to elaborate on that, please?

MR. GERALD LETHBRIDGE:

Yes. Yes, I would. I think there's been some confusion created somewhere along the line. Our designs have always provided for two ground hoppers, one on the limestone side and the other one on the coal side. And our intention certainly for the early stages of that plant, during the stages where the coal will be trucked in, is that when we are delivering coal to the ground hoppers from the storage pile, it will be pushed in from the side. We will not be pushing coal across the road to the other hopper. The other hopper on what would be the north side will be pushing limestone in from the side to that particular hopper. I believe that our drawings in the report indicate essentially what I'm saying.

MS. SHIRLEY NICHOLSON:

Fine. I'll check that later. Thank you very much.

MR. JAMES HARRISON:

While they're just checking that, I'll entertain another question. Questions from the audience please? Yes, sir.

MR. TED MARSH:

Mr. Chairman, my name is Ted Marsh, County Councillor for the County of Cape Breton, District One.

I'd like to say up front that I support the project of the Point Aconi Generating Plant. I think it is a vital piece of infrastructure that is needed for the maintenance in the long life of Prince Mine. With over 450 people employed there, their families, and spin off effects of Prince Mine, it is totally necessary for the life-blood of the Northside. Failure of the generating plant to locate there would mean a shorter life span of Prince Mine, so understand that my way of thinking and that of the Council of Cape Breton -- County of Cape Breton is in support of this project.

Since this is a question period and I do not wish to present a brief, I have a question concerning Mr. Neal Livingston's proposal. I understand that he is an independent power producer and he is representing other independent power producers. So you are an independent power producer, sir?

MR. NEAL LIVINGSTON:

Yes.

MR. TED MARSH:

Okay. But you are -- Okay. In that -- Since you are an independent power producer, sir, you have a direct benefit to gain by the failure of the generating plant to not go ahead, although it might be small, sir. I would ask the Chairman for a ruling on that in the grounds of personal conflict. I am very unhappy that a member of such an organization would come here to Prince Mine and take away generating -- try to take away a generating plant for his own personal gains. Mr. Chairman.

MR. JAMES HARRISON:

Well, sir, I -- There may be a bit of personal conflict, but I think there's -- if you look at all sides of the whole proposal and considering the environmental aspects, we -- I think we all have a bit of personal conflict with it, and I don't think -- I don't think we could rule him out of order on that -- on those grounds.

Are there any other questions from the audience?

MS. HEIDI SCHWARTZ:

My name is Heidi Schwartz and I'm from Sydney.

My question is dealing with the procedure that you are using today, and it seems to be in a meeting format. And I'm wondering why it's in a meeting format as opposed to a hearing with witnesses that people can cross-examine.

MR. JAMES HARRISON:

You can ask questions of the people that have been speaking and presenting. There's a fair amount of latitude on behalf of the -- or I guess, allocated to the Environmental Control Council in the structure of the hearings. We're trying to make them, I guess, on a semi-formal basis, formal presenters, and you can ask questions about it, and that's what the question period is for. And we're trying to make it also as informal as possible so people aren't intimidated regarding asking questions and having them answered. I'd encourage everyone to participate. If you do have a question, ask. We want to hear your questions and we want to hear the answers, too.

There's another gentleman in the back. Would you come to the microphone please?

MR. MIKE CAFFIERS:

Well, I think you can hear me.

MR. JAMES HARRISON:

No, we have a problem in that we're taping the whole proceedings and if you don't come to the microphone, the mikes won't pick you up and your remarks will not be recorded and will not form part of the proceedings. So if you wish to be heard, that's what you should do, sir.

MR. MIKE CAFFIERS:

I only have one question. I'd like to ask Mr. Livingston if --

MR. JAMES HARRISON:

Your name, sir?

MR. MIKE CAFFIERS:

Mike Caffiers, C-a-f-f-i-e-r-s. I'd like to ask Mr. Livingston just one question. If the Nova Scotia Government were to guarantee him that they would buy the power from his plant, would he be here today protesting against the project here in Point Aconi? I think not.

MR. JAMES HARRISON:

Well, are you asking a question? Do you want it answered? Mr. Livingston.

MR. NEAL LIVINGSTON:

As an individual and as also representing the Ecology Action Centre, I would certainly say that I would be here today because as someone who is interested in power generation and having been interested in it for slightly over a decade now, I'm very interested in that. And I also feel that these projects have broad impacts on the economic and social development of the Island I live on, which I have a great love for and I would certainly be here because it's very important to explore alternative ways of developing our economy and providing the needs of it which include electricity. So you can bet I'd be here.

MR. JAMES HARRISON:

Thank you. Anybody else in the audience from -- that would have a question directed to one of them? Mr. Mike McGill from the panel.

MICHAEL McGILL:

I have one that is perhaps to the Power Corporation or Neal. The call for proposals for the hundred megawatts of power, I'm just curious as to know what type of -- whether it was wind, hydro or what the type or method of producing it was?

MR. TERRENCE MacDONALD:

Yes, thank you, Mr. McGill.

I'd like to begin by pointing out that on May 10th, 1989, Nova Scotia Power filed with the Board of Commissions for Public Utilities an application to have them set a rate at which power purchases would be made from the small power producers in the Province of Nova Scotia. However, just prior to the date that the hearing was scheduled to begin at the request of the small power producers, Nova Scotia Power withdrew its application and therefore the hearing was adjourned without day. So I'd have to say the reason why, for starters, that it was suggested that perhaps we were dragging our feet is not because Nova Scotia Power had not applied to the Public Utilities Board to set a rate, but rather because some of the people from whom we might have purchased the power decided that perhaps at that time a hearing was not in their better interests.

Now what are the types of the energy that we have proposed? I can tell you in summary we have a subtotal of 57 megawatts from wood. And before I go any further there, I would like to read a line from a report entitled "Wood/Coal Fired Power Generation Comparison Study". The study was prepared for the Nova Scotia Department of Mines and Energy. It was submitted in August of 1987. Fenco Shawinigan Engineering Limited, Shawinigan Entag Incorporated, the divisions of Lavolin in association with LaHave Forestry Consultants Limited, Gardiner Pinphal Consultant Economists Limited participated in the preparation of that report. Now I'll just read you a part of the conclusion:

> Even the most attractive 20 megawatt wood-fired plant, that is from the base case with steam sales and a ten percent decrease in fuel costs has higher energy costs than the worst case coal alternative, including capital costs escalated by 20 percent over what we actually experienced at Lingan with flue gas desulphurization included at Lingan and a five percent increase in fuel costs over that which we were paying at Lingan.

So we have 57 megawatts quoted. We have a reputable study here that indicates that at least that portion of the hundred megawatts that had been tendered are not likely to be cost competitive with coal-fired generation.

We have hydro, and of the hydro that has been submitted, it's possible that it might all be developable and it might all be economic. However, whether or not it would be environmentally acceptable is another matter. We have 21.6 megawatts of hydro submitted. Of that hydro, 12 megawatts is on the Gold River in Western Nova Scotia, and in the early '70's, or late '60's, I guess, the then Nova Scotia Light and Power Company Limited concluded that it would not likely be environmentally acceptable then to develop those sites. So it is extremely unlikely that it would be acceptable today. We have 900 kilowatts, or .9 of a megawatt of wind, and we have experienced operating a 300 kilowatt wind turbine at Wreck Cove. It's a demonstration unit because we are interested in renewable resources. We do not find, however, that it was economic, but we continue to investigate wind power and one day, we hope, that the technology will prove to be economic in Nova Scotia.

Another 10 megawatt potential exists from methane from the Cape Breton Development Corporation's mining operations at Lingan and Phalen. And we are currently actively investigating the use of that methane as a fuel at our Lingan Generating Station.

And finally, there's municipal solid waste of which we have five megawatts and it is possible that that will become a reality on the basis that landfills are becoming a problem and therefore since there's a cost in disposing of garbage, since that cost can then perhaps go towards, in effect, paying a portion of the cost of operating an electrical generating unit to burn municipal solid waste, that may come about.

In short, I think we have a list of the potential projects here. I suggest to you that most of them are not likely to be economic as compared to Lingan. Some of them will not pass environmental screening, but some will. And I don't have any problems with suggesting that a few of these megawatts will actually show up on our system. It depends upon, of course, gaining environmental approvals and then having the guaranteed fuel supplies to fire the wood-fire units.

There's one other unit size that I didn't mention, and it's coal. The proposal was for 33.6 megawatts. And I can assure you that 33.6 megawatt unit sizes of coal are clearly uneconomic as compared to 150 megawatt unit sizes, because economies of scale are just not possible at that unit size.

So I think that's the summary of the independent power options that we have before us.

MR. JAMES HARRISON:

Are there any other questions?

MR. NEIL LIVINGSTON:

I would like to respond to that.

MR. JAMES HARRISON:

All right, Mr. Livingston?

MR. NEAL LIVINGSTON:

I'd only like to briefly respond to that. We've offered to have Mr. Marcus come in and he wasn't available on this day. He can professionally address the things that Mr. MacDonald was talking about.

MR. JAMES HARRISON:

Do you have a question, Mr. Livingston?

MR. NEAL LIVINGSTON:

No, I thought -- I'm sorry, I thought Mr. McGill also addressed that question to me.

MR. MICHAEL McGILL:

I asked somebody to enlighten me on what the options were.

MR. NEAL LIVINGSTON:

Okay. Well, as I say, we'd very much like to have an expert to come in and talk about them directly. As someone who isn't an utilities expert, I can tell you the little bit I know about the wood-fired study. Our experts feels that study was very flawed compared to other studies and other plants that work in other areas, and there are a number of wood-fire plants in other areas in North America. There is potential for co-generation at pulp mills. That's -- I won't go into detail on that, but Mr. Creighton in his Trenton Six Brief for the Intervenor talks about that in some detail. I won't go into it here.

The general feeling about the windmill the Power Corporation tried out a number of years ago was that it was a bad choice and a bad company and a bad way to go about it, and all I can say is that if you want to have a hearing on this matter, you should bring in Mr. Creighton. As far as P.U.B. goes, we're all looking for a policy and there's no reason the Power Corporation can't get their policy before the P.U.B., and if no one wants to get involved in intervening, the policy will go right through.

MR. JAMES HARRISON:

Thank you. Any other questions from the audience? I have one question that I'd like to direct to the Power Corporation. When you were talking about SO_2 emissions and -- sulfur dioxide emissions and carbon dioxide emissions, I wonder, does the Corporation have a policy for retrofitting existing plants and for sulfur dioxide removal? And also connected with that, what is the Corporation to access to studies regarding CO_2 emissions?

MR. TERRENCE MacDONALD:

Well, let me begin to answer that question by telling you that we are publicly committed to reducing emissions from our existing units. How that will come about has yet to be determined, although we are nearing the completion of a draft of an assessment of the alternatives opened to us.

Of course there's the conventional retrofitting of scrubbers, which is possible. There is the use of an emerging technology which we'll call limestone slurry injection. There's another option which is a slagging combustor which is slightly more futuristic. And of course, there is the standard ones which perhaps are slightly costly but could be implemented more quickly, and that would include additional coal beneficiation or cleaning or the conversion to lower sulphur fuels. We expect to have that study completed probably in six to eight weeks, and at that point in time we will be making recommendations to our Board of Directors. But yes, we do intend to move forward towards an approval of reductions in emissions from our existing units.

With regard to CO_2, we have I guess what you might call a research and development program under way and are part of larger organizations involved in R. & D.; for example, the Canadian Electrical Association, which is funded by utilities across Canada as well as by the Federal Government. They in turn are associated with international research institutes like E.P.R.I., which is Electric Power Research Institute in Palo Alto, California, which is funded by the American Utilities. And we are, through C.E.A., associated with research in Japan and in Europe and so on. So we are attempting to, at least, be informed on what is going on for technologies for CO_2 reduction. But we believe what holds the greatest potential in the short term is the improvement of combustion efficiency processes. And one process which is not quite yet commercially viable but is being demonstrated in commercial sizes is integrated coal gasification combined cycle, whereby coal is gasified. The gas is consumed in a gas turbine. The exhaust gases from the gas turbine are used as a source of heat which is extracted in a condensing cycle unit not unlike our Lingan or Tupper or indeed our Point Aconi unit. So we are keeping abreast of what's going on there. It's our judgement that at least for the next short period of time; by that, I mean perhaps to the mid to late 1990's, it's not likely that there's going to be a significant cost reduction in those technologies although they are emerging at a relatively fast rate.

There's other technologies as well, and maybe Mr. Lethbridge would like to add a few things.

MR. GERALD LETHBRIDGE:

Yes. Insofar as studies are concerned, specifically we are looking at partial gasification. This is something that perhaps will be a little bit further on down the road, but the process will include, or will involve, the gasification of coal. We won't gasify it completely. You'll end up with a coke or a char. The char will in turn, we've proposed, be burned in a circulating fluidized bed system, and again as a I mentioned in my presentation, the C.F.B. system has the ability to burn a wide variety of fuels. So if we partially gasify coal, we can use the char in the C.F.B. and the gas would then go forward, as Mr. MacDonald explained, to the gas turbine combine cycle system. That is another system that we are looking at.

He did make mention of some work that is currently underway in conjunction with CANMET, Cape Breton Development Corporation and Department of Mines and Energy, in utilizing methane from the Lingan and the Phalen mines. We are studying the possibility of being able to burn that methane rather than discharging it directly to the atmosphere. And as Mr. Schneider indicated certainly if we can do that, we can convert the methane and burn the methane. We will emit some CO_2. It would be less CO_2 than an equivalent amount of calorific value in the coal, but certainly CO_2 is much less an adverse product than is methane. So there are a number of systems that we are presently investigating.

MR. JAMES HARRISON:

Are there any more questions?

MR. AARON SCHNEIDER:

I would like to ask a question of Mr. MacDonald.

But first I think I want to just put something on the record about the question put to me by Ms. Nicholson about the predictions in that document you showed me. Without reading it, obviously I can't really comment on it except to say that what it appears to be is a best case scenario, if people started reducing CO_2 emissions according to the potential for reducing them. It may be something like that. The problem is that no one seems to be reducing them and that's why the dire forecasts that I mentioned here today.

My question to the Power Corporation is simply I would like some more detail on the research that Mr. MacDonald mentioned about reducing carbon dioxide emissions from coal burning power plants, if that's what I understood you to say. Could you tell me what some of these techniques are that are being explored and what the possible lead times are on their development and application?

MR. TERRENCE MacDONALD:

Yes. I think at this time the one that seems possibly to be the closest to being commercially realizable is integrated gasification in a combined cycle mode. And why that is beneficial from the CO_2 reduction perspective is that the cycle efficiency is significantly greater than that from a conventional condensing cycle. For example, our Lingan unit is probably about 33 percent efficient in its use of the B.T.U.'s that are input. The combined cycle mode would be approximately 40 percent efficient, which is about a 20 percent cycle efficiency. And that, in turn, would result in a 20 percent reduction of CO_2 per unit of kilowatt hours produced. So it's those kind of efficiency improvements that are on the horizon that hold some potential.

If we could move to co-generation, which would dearly support if we had the opportunity. Mr. Livingston did mention that co-generation might be an alternative. Well, in co-generation, it's a fact, I guess, by definition that what is required is the combined use for the steam that is produced as well as the electrical output. Now, our system can absorb the electrical output. The unfortunate part is that frequently the steam requirements don't exist in significant volumes to permit efficient utilization of co-generation. But a few years back Nova Scotia Power operated two of the largest co-generating facilities in the world. At Glace Bay we provided 750,000 pounds of steam an hour to the Heavy Water Plant there and we then took the steam that went through the back pressure turbine, sent it to the Heavy Water Plant, and we gained cycle efficiencies there. At Point Tupper we operated a still larger unit. We delivered a million pounds of steam an hour to the A.E.C.L. Heavy Water

Plant through an 80 megawatt back pressure unit. And the Heavy Water Plant in that case provided a condensing cycle; in other words, they turned the steam that was going through into the liquid, and it was returned to our system and sent through the boiler again.

Now when A.E.C.L. shut down the Heavy Water Plant at Point Tupper, we lost 80 megawatts of generation. And when they shut down the plant at Glace Bay, we didn't lose as much generation because it being an old plant, we already had in place, before the A.E.C.L. plant was built, a low pressure generation which we then redirected the steam that would have otherwise gone to A.E.C.L. through.

But I'll come to the point, and the point is is that the thermal efficiency in those co-generating stations, Point Tupper in particular, was well in excess of 80 percent, and if you can get that happy combination of a large steam load and an electrical load, then that's clearly the way to go. Now unfortunately the opportunities in Nova Scotia because our industrial infrastructure are limited, and therefore there are not large numbers of opportunities for co-generation. However, when they exist, they should be explored. And two of the large pulp mills today operate co-generating facilities, Stora and Scott.

Bowater, on the other hand, doesn't have a need for co-generation facilities because of the process they use. They use something called thermo-mechanical pulping which is electrical driven, and it makes very high efficient use of the paper -- or sorry, the wood fibre that goes into the mill. For example, older pulping processes are perhaps only 70 percent efficient in the use of the wood fibre that goes in, whereas the thermo-mechanical process is almost 100 percent efficient. So all the wood fibre that goes in gets converted into a saleable product. Now, it's unfortunate that the electrical drives that they use in this particular instance produce excess heat. And as a result, rather than requiring steam heat and therefore being eligible for co-generation, they have in excess low quality poor heat that is of not much use to them and certainly no use to us for electricity productions.

So I'm just saying that the opportunities for co-generation in Nova Scotia are relatively limited, but wherever you've got a steam requirement, then there's always an opportunity to take advantage of it and put an electrical generator on it.

MR. JAMES HARRISON:

Thank you. Are there any further questions? I don't see anyone leaping to come to the microphone so we'll adjourn until later on this afternoon at one o'clock.

Thank you for being a very responsive audience.

HEARING RECESSED AT: 12:20 p.m., AND RECONVENED AT: 1:07 p.m.

MR. JAMES HARRISON:

Ladies and gentlemen, would you kindly take your seats and we'll proceed. We're a little behind schedule, seven minutes actually but would you take your seats, please?

Some of this is going to be really repetitious for those who were here this morning but for the benefit of those that are here for the first time this afternoon, we'll repeat some of what we did this morning and I just wanted to make some opening remarks.

My name is Jim Harrison and I'll be Chairman of this meeting today in Point Aconi and my colleagues here are Shirley Nicholson and Michael McGill, and we've been delegated by the Control Council to hear your comments about the electrical generation station proposed by the Nova Scotia Power Corporation for the Point Aconi area.

My responsibility is really to make sure that all of you who wish to make a statement or to ask questions are provide with that opportunity.

Just a few words about the events that led up to this meeting:

The undertaking, the Point Aconi undertaking was originally registered by Nova Scotia Power Corporation on the 2nd of December, 1988, under the Environmental Protection Act, which are the Statutes of Nova Scotia, 1973. Then the Environmental Assessment Act came into effect -- the new Environmental Assessment Act came into effect on the 14th of January, 1989, and after that, the Nova Scotia Power Corporation voluntarily re-registered the undertaking under this Act on the 28th of July.

Now terms of reference for the Environmental Assessment Report, as provided under the Environmental Assessment Act and Regulations, were prepared and finalized with comments from interested Nova Scotians.

And the Environmental Assessment Report was accepted and released by the Minister as was noted in the Chronicle Herald newspaper ad of 9th of December, '89, with written comments invited by the 29th of January, 1980. The matter was referred to the Environmental Control Council on the 11th of December, 1989.

And then notices were published regarding this meeting in Point Aconi Community Hall on the 12th, 22nd, and 29th of December in the Chronicle Herald and the Cape Breton Post and the ads asked that persons who wished to make oral or written submissions to notify the Nova Scotia Environmental Control Council by the 10th of January this year. These people that responded were then contacted by the staff and scheduled into mutual acceptable time slots, and that's where we are now.

Now the Environmental Assessment Act says that the Environmental control Council shall first of all:

- Consult with the public,
- Recommend to the Minister of the Environment approval or disapproval, or conditions which ought to be imposed upon an undertaking if it proceeds.

The Council shall also perform various functions and exercise powers conferred upon the council under the Acts. (That's the Environmental Assessment Act and the Environmental Protection Act.)

The Council has the power to either appoint or authorize the Chairman of the Council to appoint a committee of council to perform the functions and exercise any of the powers of the Council. And the Nova Scotia Environmental Control Council at a regular meeting on the 8th of November, 1989, authorized the formation of a three-person committee for this with myself, Jim Harrison, as the Chairman.

Now in considering the format of these meetings, the Council decided that provisions under regulation 10 (1) of the Environmental Protection Act, will be followed; that is, these public consultations will be conducted in a relatively informal manner, so that the meeting procedures really don't intimidate either you or indeed our own committee here.

So our Agenda will be as follows:

The proponent, the Nova Scotia Power Corporation, will give a brief description of the undertaking and the environmental impacts considered.

Those of you who indicated you wish to be heard will then proceed in the sequence arranged with you.

Before any formal presentation is made, you will be asked to take an oath or affirmation.

And then other members of the public will have an opportunity to comment after the presenters have been scheduled.

Then we'll have time for questions and I'd ask that the questions be directed to the Chair, so that we can then interpret them or, if necessary, redirect them to the appropriate person for response.

I'd also point out that all the proceedings are being transcribed and we ask you to make sure that you use the microphones, that you clearly identify yourself and your place of residence.

Now the people that make the presentations, I'd ask them to come and use this podium because we've had comments that people like to see the faces of persons that are talking to them so I'd ask you to use this podium.

You will note also that we've provided the media with some work tables and we request that any interviews or questions by the media during this particular portion of the program be conducted outside of the meeting room. (There is a small room at the back.)

I mentioned this morning that if the T.V. cameras want to take preliminary camera "shots" of the meeting, and various individuals to do so, but we wanted to have the lights turned off while the meeting's in progress.

Now are there any questions regarding -- anyone might have regarding the structure of the meeting?

Okay. Well then we'll proceed with the proponent's description of the undertaking. We have representatives from the Nova Scotia Power Corporation, Mr. Terry MacDonald and Mr. Gerry Lethbridge here to give that presentation. Gentlemen.

MR. TERRENCE MacDONALD:

Thank you Mr. Chairman.

For the benefit of those who were not here this morning, my name is Terry MacDonald. I'm Vice-President of Planning and Environment at Nova Scotia Power. With me here today are Mr. Gerry Lethbridge, who's Vice-President of Engineering and Production and Osmundo Betancourt, who is Director of Environmental Policy and Programs.

I would like to begin today to very quickly tell you about our planning process at Nova Scotia Power and, in effect, highlight that which is contained in our Environmental Assessment Report which was filed with the Department of Environment.

In our planning process, we begin by defining our objectives and establishing criteria. We estimate our future customer requirements, that is particularly from a load forecasting perspective. We identify potential resource options including demand and supply side options. We assess the environmental issues. We integrate the resources into plans. We implement the most attractive plans and this is a cyclical process and is ongoing.

Our objectives are basically to meet the needs of Nova

Scotia for electric service at an acceptable level of reliability at the lowest long-term cost and to contribute to the socio-economic development of the Province.

Our basic planning criteria address reliability and in reliability, we are concerned with the generation reserve. Nova Scotia Power carries a 20-percent planning reserve; that is, we carry 20 percent more capacity on the system than our peak firm demand. By "peak firm demand", I mean demand that we expect to be there at the time of system peak exclusive of those loads which we have by our rates as interruptable customers. On our system we have approximately 150 megawatts of load that can be on the system but which is interruptable and we do not plan capacity for that interruptable component of load.

Interruptable load is a recognized demand management tool. The 150 megawatts we have represents approximately eight percent of our system load; and on that basis, we have more interruptable load than any other utility in North America.

Our transmission criteria are based on single contingencies. By that I mean no single contingency should result in a shutdown of the system or a blackout. So if we have to tolerate the loss of a transmission line, for example, due to a lightning storm, the line can be tripped out of service, the rest of the system should stay together because if it doesn't, the system will cause a blackout.

We have a distribution criteria which is one supply per customer and if any customer requires a higher degree of reliability, then any supplemental supplies must be paid for by the customer.

We have an economic criteria, which is a lowest long term cost, a financial criteria, where early year costs -- sorry, early year impacts on rates must be judged to be acceptable. We have a socio-economic criteria, which -- in which Nova Scotia resources are used to the maximum extent economically feasible and more importantly, we have environmental criteria.

Environmental regulations and requirements are an important part of our planning process and measures to meet these requirements are incorporated into all our designs. Approvals are sought through the Provincial Assessment process under the various applicable Provincial and Federal Acts, regulations and objectives in compliance with the selected -- and all alternatives comply with the required regulations.

To identify potential future customer requirements, we prepare annually a load forecast. I indicated that we have both firm and non-firm loads, so I'll constrain my comments to what we call the firm peak.

By '93-'94, we forecast the firm peak to grow to be 1860 megawatts which when compared to our then installed capacity-- by I say "then", I mean that Trenton Number Six, which is a 150-megawatt unit, will come on line in 1991. So our then installed capacity will be 2139 megawatts.

In the absence of additional capacity additions or load reduction, we will have a requirement for 93 more megawatts than we actually will have on the system. That figure is derived from taking the firm system peak, adding the 20 percent planning reserve and then comparing it to our installed capacity. We'll have a shortfall of 93 megawatts.

Now at the Trenton Six hearing, our Public Utilities Board entertained intervention from outside experts who challenged our load forecast and the Public Utilities Board accepted our load forecast. What's more, we submitted to the Public Utilities Board, in July of 1988, a report comparing the Nova Scotia Power Corporations future forecasts with that of the average of Canadian utilities as a whole and separately with that of the average of American utilities as a whole.

And for the planning horizon that one talks about for determining the needs for new capacity, the Nova Scotia Power forecast in the 4th year out had a mean absolute percent error of 3.3 percent as compared to other Canadian utilities which had a mean absolute error over that same time horizon of 9.4 percent and to the American utilities which had a mean absolute percent error over that same time period of 11.6 percent. So our forecasts on average are wrong by 3.3 percent, whereas in Canada other utilities were wrong by 9.4 percent and in the U.S., the other utilities were wrong by 11.6 percent. And no one can predict the future accurately; however, at least for the samples that we had access to, we determined that our load forecast certainly was as least as good as those in other jurisdictions.

Our energy resource options include the demand side and the supply side. On the demand side, we have load management, which is changing the timing of customers demand and on the conservation side, we have decreasing the customer's demand. Supply side options include adding new generation, modifying existing generation, or purchasing. Under modifying existing generation, for example, we recently converted the Point Tupper Number Two unit to fire on coal rather than heavy fuel oil.

On demand management, since 1978 we have been involved in an extensive load research project. As I've already indicated, we have more interruptable load on a percentage basis than any other utility in North America. As part of our load research program into the demand side management issue, we investigated time of use rates and world expert, Ralph Turvey, concluded that for a system of the nature of Nova Scotia Power, time of use rates was not likely to be a factor. And more recently, one of the boards -- Public Utilities Board witnesses agreed with that.

We have experimented with water heated controls. We have experimented with plenum heaters. We have experimented with dual fuel heat pumps. All of -- none of these alternatives are economic in the short term for Nova Scotia Power or its customers.

On the supply side, as I indicated, in '93-'94, we need new capacity. The shortfall is approximately 90 megawatts. There's insufficient capacity to meet the load. Therefore, there is capacity required in that year. In addition, we have been mandated by the Provincial Department of Environment to reduce our SO_2 emissions to -- to limit them to 160,000 tonnes per annum.

Combined with the capacity requirement and the need to reduce and control our SO_2 emissions, we've determined that a circulating fluid bed unit located at the Prince Mine would be the most economic alternative to satisfy our needs.

Our report addresses, in addition, the environmental issues and Mr. Lethbridge will speak to them in a moment or two. Our report addresses the atmospheric emissions of SO_2, NOX and particulates and CO_2. We address ambient and their quality of SO_2, NOX and particulates. We address the coal, (supply, transport, storage and use) the limestone, (supply, transport, storage and use). We talk about ash disposal, the circulating or cooling water systems, fresh water supply, community issues, including fishing, traffic, noise, and dust, and terrestrial ecology and aquatic ecology.

I just wanted to leave you with my firm conviction that the most cost effective solution to satisfy the required additional capacity in an environmentally acceptable manner in '93-'94 is capacity that removes the sulfur from the stack emissions of the Point Aconi unit of C.F.B. technology which reduces NOX emissions to less than one-third of that from a conventional plant, thereby contributing further to acid rain reduction.

Because the Prince coal we currently burn is blended and used at our Lingan and Tupper stations, that means that the coal burned there will have a reduced sulfur content because some of the coal will be burned at Point Aconi, therefore the average sulfur and the coal burned at these other stations will be reduced, which means that the emissions from Lingan and Point Tupper will also be reduced, thereby improving the ambient air quality in those areas.

So our recommendation is to locate a C.F.B. near the fuel source where it's most cost effective and that the unit be a 165 megawatt C.F.B.

Now I'll turn it over to Mr. Lethbridge.

MR. GERALD LETHBRIDGE:

Thank you. Mr. Chairman, Members of the Board, Ladies and Gentlemen, my name is Gerry Lethbridge and I'm the Vice-President of Engineering and Production.

I'd like to give the people that were not here today a little bit of a history of how we arrived at the Circulating Fluidized Bed technology and choosing the Point Aconi site. In addition, I'll give a brief description of the basic thermal generating station process, its inputs and its outputs, and finally a bit of a description of the Point Aconi site itself.

Now we started studying this technology back in 1979 and at that time, we were aware of its ability to burn a wide variety of fuels and we were certainly interested in that, but perhaps even more importantly, we are interested in the fact that it has the ability to eliminate the -- to eliminate to a great extent the precursors to acid rain, these being sulfur dioxide and oxides of nitrogen.

Our interest heightened to the extent that in 1982 in conjunction with Energy Mines and Resources, we built a fluidized bed test rig at Point Tupper. You can see it under construction here. The purpose of this rig was to determine the corrosion-erosion aspects of the in-bed tubes or perhaps just as important, from our standpoint, was that it afforded us the opportunity of being able to get some experience in operation in the fluidized bed environment.

Now concurrently with this project, we developed a four-phase program which included technical feasibility of the Circulating Fluidized Bed system at the 150 megawatt level, financial feasibility, pre-engineering work, which included burning Cape Breton coals and limestones in the 20 megawatt test rig at Chatham. We also did in that phase limestone characterization tests and as well, in phase three, we have included the approval process. Of course, that's a stage where we find ourselves today.

Now if we are successful in receiving approval, we would then move on to stage four, which includes the detailed design, construction, commissioning and operation of the full stage plant at Point Aconi.

Now during the third phase, we also included a site selection study, and that included a look at the possibility of building a plant like this at four different sites, Donkin, Lingan, Victoria Junction, and Point Aconi. We looked at a number of different elements in that analysis, including proximity of each of those sites to coal sources, limestone sources, access to the site, environmental and social impacts, and economic comparisons. And when all this was analyzed, we concluded that the Point Aconi site was optimal.

I'd like to move on now to a basic description of a Thermal Generating Station, and I'll move over to the board. The station includes the furnace or the boiler into which coal is injected. We pump water through a water treatment plant or chemical treatment plant. The water goes into the boiler and it is through the heat process -- the heat exchange process, it's converted to steam. The steam drives the turbine which is connected to the generator. The generator, of course, produces electric power for our customers.

Now in order to complete the steam cycle, we have to convert all of the steam back to water and we do this in a condenser which is shown there. The condenser utilizes relatively large volumes of outside cooling water and you can see the water coming in through the condenser and back out here.

Now there are byproducts that are associated with this process and the byproducts are shown on this slide. We have leachates from the coal pile, waste chemicals from the water treatment plant. We have drains from the power station itself. We have bottom ash, fly ash. We have to concern ourselves with fish and other micro-organisms on the intake and also of the warm water effects on the aquatic environment on the discharge side. In respect of the flue gas emissions in addition to the ash that I already have mentioned, we have SOX and NOX, both precursors to acid rain and also CO_2.

Now on our more modern stations, all of these byproducts have been attended to by mitigative processes. For instance, the leachates from the coal pile, the waste chemicals from the chemical treatment plant are taken to a waste water treatment plant and they together with drains from the plant, after those drains go through an oil trap, are treated in the waste water treatment plant before discharging to the environment.

Insofar as the circulating water system is concerned, fish capture is mitigated by low velocity intakes and the warm water effects from the C.W. discharge are defused by appropriately designed structures. In some cases, we use the warm water to assist in fish aquaculture.

The ash, bottom ash and the fly ash, are disposed of in control landfilled arrangements. Some of the fly ash, where possible, is sold as a cement replacement in the concrete -- in the manufacture of concrete.

Insofar as sulfur dioxide is concerned, we use washed coal wherever possible. We use low NOX burners to minimize the formation for nitrogen oxide. Our electrostatic preceptors are 99 percent plus efficient to minimize the particulate emissions. And our modern plants, (those that have been built in the 1970 era) Lingan as an example, are much more efficient than our original ones that were built back in the '40's and '50's by perhaps ten percent and that, of course, contributes to the mitigation of CO_2.

Now in our plant at Point Aconi, in addition to all these mitigative measures, we will with our Circulating Fluidized Bed technology have the ability to capture 90 percent of the sulfur and further reduce nitrogen oxides by about 60 percent.

Now we could move on to a description of the site. For orientation purposes, this is Highway 162, pit head to the Prince Mine. Point Aconi lighthouse is out here at the very top of the slide. The site itself is a 52-acre site. It's here right on the Atlantic Ocean. The highway extension, the 162, comes along here and the waste disposal area is immediately south and immediately adjacent to the site.

Now we'd like just to spend a moment on the waste disposal. There has been a lot of information that has been published in the media about statements of taking the pollution out of the air and disposing of it on the ground and that, of course, is not true. It's disposed of in a controlled manner. The material itself, the ash from a Circulating Fluidized Bed system, is alkaline in nature. There is very little potential for mobilization of any of the heavy metals that some people are concerned about and the ash itself sets up -- we did tests from the Chatham experience. The ash, if properly conditioned sets up. It is very hard; in fact, it can be called low grade concrete and when I finish and the lights come back on, I think Mr. Betancourt over there has an example of the condition of the ash once it is compacted and in place.

Now in addition to our confidence that we will not have a problem in disposing of the ash, we are going a step further and in the first couple of years, we will be lining the first, what we call a cell, or the first section of where disposal is going to take place. We will be providing under-bed drains to collect -- to give us the opportunity to collect the leachates from the ash disposal. Those leachates will be monitored to prove what we believe will be the case, that there will be no adverse environmental effects in respect of mobilization of heavy metals.

If I could move on now to the actual site itself. It is featured by the Unit One power house which is shown here. Units two and three are immediately south of that. The circling water intake system is -- has its intake velocity cap about 1.3 kilometers from the shore line. Water will be brought in in a below bed -- a below seabed tunnel through the condenser and discharged back to the environment, back to the sea in this manner.

The coal storage area is shown here, about 160,000 tonnes in total. The 50,000-tonne limestone storage is shown here. All of the drains from both those piles will be collected in a run-off pond, some of which will be directed to the waste water treatment plant where it, together with the drains from the power house, will be treated before discharging to the environment. The remaining water from the run off or the sedimentation pond will be directed over here for conditioning purposes on the fly ash and bottom ash. These are the fly ash and bottom ash silos, and as I say, the water will be used recycled for that purpose.

This is the stack for Unit One. This is the sub-station over here. Both limestone and coal will be brought in by truck for the first unit and disposed of in -- at ground hoppers. One is located here immediately adjacent to the coal pile and the other one immediately adjacent to the limestone pile. The coal and limestone will be then directed up a conveyor, coal going directly into the bunkers of the plant and the limestone to the limestone preparation plant which is shown here in red.

I believe, Mr. Chairman, that's pretty well my presentation for this session. We believe that we are proceeding with a state of the art project and all best available technologies are being used to mitigate the environmental impact. Thank you.

MR. JAMES HARRISON:

Thank you. The next presentation will be given by Mr. Henk Niesten. Is he present? Would you kindly come up to this podium, please? You may not have been here when I explained that people like to see somebody's face and --

I neglected to re-swear the Nova Scotia Power Corporation people in again. Is that acceptable as a legal --

I would ask you, Mr. Niesten, to put your right hand on the Bible. Do you swear the evidence which you are about to present at this hearing will be the truth, so help you God? If so answer, "I so swear".

MR. HENK NIESTEN:

I so swear.

MR. JAMES HARRISON:

Thank you.

MR. HENK NIESTEN:

Mr. Chairman, Committee Members, Ladies and Gentlemen, we'd like to take this opportunity to bring to your attention some concerns we have regarding emissions from the proposed generating station and possible changes of the water table.

We also want to make it quite clear that we're not against the proposed new plant. With our fishery in jeopardy, cut-backs in all our ranks of our other industries, we need other sources of employment. Our industry needs customers and so does the service industry and all other suppliers and manufacturers.

Getting back, we also -- (I lost my place. You'll have to bear with me, gentlemen, please.) We also have some questions concerning the same, that is the water tables and the emissions, and we also have some proposals. Although we're not quite sure -- Although we are quite sure that every -- I got a -- Although we're quite sure that every precaution is taken to insure as low as possible sulfur content or other harmful material in the emissions from the plant, we don't know if those materials will have an affect on horticultural or agricultural crops in the area. What if we are going to find some, or all of our crops, damaged due to this release?

Some of the questions: Will there be a monitoring station built in the vicinity of the plant? Will compensation for damage be considered? About the water table, we are aware that holes were drilled to monitor the water table. What we don't know is who is doing it? Who is doing the monitoring and what will be done if the table is lowered to a level that will force us to drill either deeper wells or look for an alternative source and as you know, water, we have a limited resource.

Some of us have experienced damage from industrial emissions before. It seems that once plants are operating or processing, it's very hard to negotiate compensation for any damage that may occur.

So in general, what we'd like to see is our concern is monitored on a daily basis, maybe, preferably by representation from Nova Scotia Power Corporation and the agricultural sector or a neutral body. And we'd also like to see a committee or body put in place that can negotiate between parties in case of complaints or concerns raised. Thank you.

MR. JAMES HARRISON:

Do you have a written presentation that you prefer to give?

MR. HENK NIESTEN:

No, sir, but I will make a re -- I'll copy this over and I'll get you a copy.

MR. JAMES HARRISON:

We're prepared to type it for you if you wish?

MR. HENK NIESTEN:

Okay, that will be fine.

MR. JAMES HARRISON:

And what we could do is, we'll get it typed and send you a copy.

MR. HENK NIESTEN:

No, I can get the same thing done too. I'll send -- I'll get it typed and I'll send you a copy.

MR. JAMES HARRISON:

All right. Will you check with Ms. Laurie Lewis at the back table to get the proper mailing address and everything?

MR. HENK NIESTEN:

Yes. Thank you.

MR. HENK NIESTEN:

Did you have any questions?

MR. JAMES HARRISON:

Well, we're going to have questions right after this, the next presentations. The next presentation is by Mr. Bruno Marcocchio from the Cape Breton Coalition for Environment Protection in the Atlantic Environment Network.

Do you have a written presentation to be given?

MR. BRUNO MARCOCCHIO:

Yes, I don't have it typed though. I'll get a copy of it typed and forward it to you.

MR. JAMES HARRISON:

I'm going to swear you in. Please place your hand on the Bible. Do you swear the evidence which you're about to swear at this hearing shall be the truth, so help you God? If so answer, "I so swear".

MR. BRUNO MARCOCCHIO:

I so swear.

Before I begin, for the record, I'm a representative for the Cape Breton Coalition for Environmental Protection and we're a member group of the Atlantic Environmental Network but I'm not here representing the Atlantic Environmental Network so I'd like that change made to the record.

Mr. Chairman, Council Members, I'm here today on behalf of the Cape Breton Coalition for Environmental Protection. If this Point Aconi proposal is, as Mr. Leefe stated, a test of the new Provincial and Environmental Assessment Act, the Act leaves much to be desired. The Nova Scotia Power Corporation proposal received advance approval from Mr. Leefe just days after this Act was finally proclaimed. This was a strong signal to the citizens of Nova Scotia that this process is of no real consequence to the environmental planners of this Province.

This process is entirely discretionary. There are no concrete criteria that the Minister must apply to this project or to any other. What constitutes acceptable or unacceptable environmental risks are apparent only to the Minister and as a result, any critical review of this Nova Scotia Environmental Act must conclude that its sole function is to empower the Minister to issue licenses to pollute.

There are no provisions for direct public participation in the planning and in the evaluation process. The public can only comment on these proposed guidelines. This one-way communication is entirely unsatisfactory. There is no obligation to address the environmental concerns that the public and environmental groups raise. Public participation in the planning and design phase of an environmentally sensitive project is an essential component of any creditable environmental assessment process.

In addition, intervenor funding and adequate time to consult independent experts must be a component of a credible assessment process. (I'd like the Committee to comment directly to that one, either now or when I'm finished my presentation.)

In this case, we've had neither the time to adequately research many of the environmental impacts of this project or the financial assistance to consult or bring to this hearing competent independent experts. How did this Council justify refusing intervenor funding to -- necessary to prepare our environmental concerns?

Section 4-C of the Environmental Assessment Act states that the terms of reference may include a description of alternatives considered. The Minister should demand a full description of alternatives to meet the anticipated three and four -- three to four percent increase in peak demand. This Nova Scotia Power and Environmental Assessment report disregards these alternatives.

Several recent analysis have indicated that energy efficiency practice could reduce the demand for energy and carbon dioxide output by 20 percent, according to the Research Branch of the Library of Parliament in a document entitled, "The Ameliorating Global Warning, policy options.", dated 8th of September, 1989.

If this environmental assessment report is to have any meaning, the Minister must direct the Nova Scotia Power Corporation to address these demand side reductions, such as, conversation -- conservation, private power productions, load shifting and incentives for increased efficiency. No assessment can be meaningful without a financial analysis of the proposal and it's alternatives. The Premier has seen fit to relieve the P.U.B. of its responsibility to assess the financial viability of this project.

Peter Allan, the Vice-President of the Solar Energy Association of Canada to a Federal Standing Committee on the Environment on the 7th of December, stated:

> I would like to see the provinces get out the electrical supply business. Down in the U.S., we have a good market because most of the electrical power is supplied by shareholder owned utilities. They do not give it away as we do in my Province, which is Nova Scotia, and we pay higher rates than usual, but still the Power Corporation loses 30 to $35 million a year that comes out of the public treasury, and that is me. So collectively we are funding this very expensive energy delivery system to supply what I consider to be dirty energy. For example, the Power Corporation in Nova Scotia is now set to spend a half a billion dollars on a so-called clean coal fired power station. That is $3,500 per kilowatt. Then it's going to cost a couple of hundred million to operate every year. At the same time the Federal Government is going to fund the development of the coal mines so that the Power Corporation has cheap coal.

Nova Scotia must meet its economic as well as its environmental responsibilities and stop being an organ simply of political patronage and of a deranged short-term economic planning. The Nova Scotia Power Corporation is clearly financially and environmentally out of control.

Maine and Vermont have recently rejected James Bay Two Power. They've decided instead to go to co-generation projects and increased energy efficiency. If the Nova Scotia Power Corporation expects to sell this Point Aconi power to the New England States, I submit that there is no market now and there will not be a market in New England for Nova Scotia Power in the immediate future, in the next 15 to 20 years. They're clearly embarking on an environmentally aware, a cost-effective method of conservation, co-generation, and demand side management.

Carbon dioxide emissions top the list of our environmental concerns. The Nova Scotia Environmental Assessment report on page -- Section 10, page 33, tries to minimize the role of anthroprogenic carbon dioxide as an earth warming agent. One report it quotes is an editorial, not a scientific paper, Science -- the Scientific American, November issue, "Science and Citizens", that article that is used to minimize the affect of carbon dioxide on the global climate, concludes:

> Cess, for one disagrees. He believes improvements to global climate models are as likely to make projections worse as they are to make them better. Only more research is likely to settle the arguments.

Several articles in the Special Scientific American issue throw some light on this controversy. The issue is September, 1989, and it's called, "Managing Planet Earth". In an article entitled, "In the Changing Atmosphere", Thomas Craedel and Paul Crutzen state that:

> The histories of carbon dioxide and methane can be reconstructed on the basis of their concentrations in bubbles of air trapped in ice in such perpetually cold places as Antarctica and Greenland. Analysis of the bubbles and ice samples indicate that carbon dioxide and methane concentrations held steady from the end of the last ice age, some 10,000 years ago, until roughly 100 years ago when the levels of both gasses began to soar.

> The increase of both gases in the 20th Century must be attributed in a large part to the many expanding human influences on the emissions for carbon dioxide. The sources are mainly fossil fuel combustion and deforestation in the tropics. Some of the same nations that have been involved in the Montreal protocol...

which was to reduce -- called for the reduction of C.F.C. emissions by 50 percent by the year 2,000.

> ...are now discussing the possibility of an international law of the atmosphere.

It would be directed towards limiting the release of several greenhouse and chemically active trace gases including carbon dioxide, methane, nitrous oxide, as well as sulfur dioxide and nitrogen dioxide gases.

We and many others think the solution to the earth's environmental problem lies in a truly global effort involving unprecedented collaboration by scientists, citizens and world leaders. The most technologically developed nations have to reduce their disproportionate use of the earth's resources. Moreover, the developing countries must be helped to adopt environmentally sound technologies and planning strategies as they elevate the standard of living for their populations, whose rapid growth and need for increased energy are a major cause for environmental concerns. With proper attention devoted to maintaining the earth's atmospheric stability, perhaps the chemical changes that are now occurring can be kept within limits that will sustain the physical processes and the ecological balance of the planet.

In another article in that special addition called, "Managing Planet Earth", Steven Schneider, in an article I think that was quoted in the Environmental Assessment report, reports that:

> The results of the most recent global circulation models are in rough agreement, a doubling of carbon dioxide would warm the earth's average temperature by between three and 5.5 degrees celsius. Such a change would be unprecedented in human history. It would match the five-degree warmings since the peak of the last ice age, 18,000 years ago, but would take effect between ten and 100 times faster.

Mr. Schneider, this morning, mentioned some of the catastrophic effects of eco-system forest collapse in the temperate climates, if indeed the climate does change as rapidly as predicted.

The article goes on to say:

> Even political conservatives agree that an economic calculous must give way to a strategic consciousness when national or global security is at stake. Security is indeed at stake here, as the implications of a global temperature rise of several degrees or more over the next century make clear.

Our Federal Minister of the Environment, Lucien Bouchard, told the Federal Government Standing Committee on the Environment on October 26, 1989, that:

> Despite the scientific uncertainty, the risk that the consequences of global climate warming will be very problematic, even catastrophic, are real significant. My cabinet colleagues are convinced of that.

> Internationally, the political community is beginning to agree on the need for action. At home, the people of Canada are demanding it. In August the Energy Ministers of Canada, representing the Federal and all the Provincial and Territorial Governments, unanimously agreed on the need for energy policy response to the issue and made a committment to work towards reducing carbon dioxide emissions in Canada.

Constructing new coal fired plants, without considering conservation and supply side solutions, seriously is incongruous with this commitment. Where is this governments committment to carbon dioxide reductions when the demand side measures are not even considered?

On the 23rd of November, 1988, Eric Haites, an economist and Cape Breton native, reported to the Federal Government Standing Committee on the Environment. He said:

> The International Toronto Climate Conference, held in June of last year, proposed a 20 percent reduction in 1988 levels of carbon dioxide by the year 2005 and a 50 percent reduction from 1988 levels thereafter. This 50 percent reduction is estimated as the level needed to stabilize atmospheric concentration of carbon dioxide.
>
> If Canada were to implement the most cost effective measures to achieve the Toronto Climate Conference targets, we would achieve a net benefit of $100 billion to $150 billion in energy savings alone. Therefore, neither excessive costs nor lack of proof that carbon dioxide contributes to climate warming is a valid excuse for inaction.

Eric Haites has done an analysis of the measures to meet the Toronto Conference goals and the results of this analysis have significant implications for electric utilities.

> By promoting more efficient use of electricity and shifting to non-fossil generating, utilities achieve roughly half of the total reduction in carbon dioxide emissions.

that -- if we're to achieve these -- this 20 percent reduction.

> Improved energy efficiency is generally the most cost effective means of lowering carbon dioxide emissions. Efficiency measures can achieve up to 75 percent of the target reductions by 2005.

75 percent.

On November 28th of 1989, Ralph Torrie reported to the Standing Committee on the Environment that:

> In the case of global warming, the energy efficiency and conservation response is the only response that can deal with this problem on a time scale that is going to help us achieve climactic stabilization. It is our only hope. It is very large. It is available. It is very cost effective.

A responsible economic model is suggested in the Library of Parliament document dated the 8th of September, 1989, entitled, "Amelioration Global Policy Options." It states:

> In Canada 21.5% of carbon dioxide emissions is from the generation of electricity. There are many indications that more exact and careful planning in conjunction with a greater reliance on cost effective renewable resources could be effective in reducing the demand for electricity that is generated by the use of fossil fuels. One strategy that is suggested to be effective is least-cost planning or demand side management.
>
> For example, if a utility proposes a coal-fired power plant, the planning process asks whether efficiency improvements in

> residences, commercial buildings and industries can make that same energy need at a lower cost. Costs are evaluated over the anticipated life cycles of the competing conservation and power plant options, allowing efficiency and energy supply to compete on a level playing field. Such a planning method should also explicitly require that environmental costs associated with global warming be included by imputing additional costs to options that involve fossil fuel combustions.

Ladies and Gentlemen, let's compare this to the planning process of the proposed Point Aconi project where efficiency improvements have been dismissed, environmental costs have been disregarded, and the financial viability of the project has been deliberately excluded from the process. It's quite clear that Nova Scotia Power and the actions of this Provincial Government are clearly out of step with the needs and the desires of the people of Canada, with the agenda of the Conservative Federal Government, and with the international community.

Canada has embarked on a program to reduce sulfur dioxide emissions by 50 percent of the 1980 level of 4.6 million tonnes. Nova Scotia has signed the Federal-Provincial agreements saying they will reduce their assigned share of emissions by 1994. Nova Scotia has not passed regulations on their major emitters that would make the regulatory -- make these regulations enforceable by law. How will Nova Scotia comply with their agreement with no legislation, no plans for scrubbers on existing coal-fired plants, and plans to build Point Aconi?

The Halifax Herald last week reported in an article by Judy

Myrden:

> The technology for cleaner burning of coal, planned for the $436-million Point Aconi power plant, is not all it's purported to be, says a New Brunswick Power Commission official who has worked with it.
>
> "There are some drawbacks" with Circulating Fluidized Bed technology, New Brunswick Power plant manager Don MacDonald said Thursday. "Things aren't always what you expect."
>
> Two years ago commission engineers fired up an experimental 32-megawatt generator at the Chatham plant, using the latest in clean coal technology -- circulating fluidized bed combustion.
>
> Using coal from several mines, the New Brunswick utility discovered that it took almost twice the recommended amount of limestone to achieve a 90 percent reduction of acid rain causing sulphur dioxide emissions. The system uses almost half a pound of limestone per pound of coal, compared to the third of a pound recommended by...

the manufacturer.

The minister of the Environment has not specified stack monitoring criteria and acceptable parameters. Without performance criteria, the emissions after start-up cannot be evaluated or kept within reasonable limits. This Environmental Assessment is incomplete until performance parameters and guarantees are in place.

Our next concern is the protection of the groundwater on Boularderie Island. The ash resulting from a circulating fluidized bed burning of coal is very toxic. It contains unacceptable levels of cadmium, selenium and sulphate, seven times over acceptable limits. The leachate from this ash will uptake heavy metals. The Environmental Assessment tries to minimize impact of these contaminants on section 7 page 5, such as iron, lead, aluminum, magnesium, calcium, arsenic and a host of other heavy metals. Section 7, page 5 states:

> The laboratory leaching conditions are unlikely to be encountered in any operating situation. The laboratory tests simply provide comparisons by allowing collection of data within realistic time scales. The time required in the field to saturate the compacted ash and produce a leachate flow would be very long.
>
> It is difficult to form any conclusion from the laboratory test about the specific behaviour or composition of the leachate runoff in the field. Such tests, however, represent worse case situations, as the general conclusions are usually sufficient to be a basis for waste management decisions.

This is a frightening minimization of the environmental impacts of this leachate. Intervenor funding would have allowed creditable independent scientific experts to form a precise description of the impact of these leachates on the groundwater it contaminates.

No leachate collection or even engineered liner is planned for the disposal site. Section 7, page 8 on the Environmental Assessment states:

> The hydraulic conductivities suggest that a carefully conditioned and placed ash layer would meet the permeability for a liner.

Section 7, page 16 says:

> The site investigation concluded that, in

> general, neither the existing till nor the bedrock satisfy the permeability requirements. The ability of the ash itself to attain long-term permeabilities better than such requirements is still being studied. Preliminary conclusions indicate that carefully conditioned and placed circulating fluidized bed ash may achieve the permeability and structural integrity required to control seepage.

This is an outrageous disregard of the probable effects of this hazardous toxic leachate on groundwater.

The hydrology, both surface and bedrock for the ash disposal site, were not tested and this contravenes Provincial government guidelines on landfill selection criteria.

The only environmentally acceptable method of disposal of this -- of this ash; that is returning it underground in an abandoned mine, was not even explored in this report.

Similarly the active and long-term coal piles and limestone piles cannot be left exposed to the elements at the generating plant. They must be contained in a building to be environmentally acceptable.

In a striking example of doublespeak, the Environmental Assessment report states:

> The natural liner, if chosen, will also provide a degree of leachate attenuation.

In plain language, the liner will leak into the groundwater. The heavy metal and sulphate contamination of this leachate must not be allowed to contaminate Boularderie water table. If this project is implemented despite the political, economic and environmental folly of its planning, this ash must be returned underground to the workings of an abandoned mine shaft in the area. The Minister of the Environment cannot simply issue permits to pollute in the generation and in the disposal of the toxic waste of that process with little regard for either the local or the global environment.

The stack height of 100 meters is inadequate to protect the local environment. The Environmental Assessment report states on Section 10, page 24:

> The stack must not be unnecessarily high, otherwise contributions to the long-range transport of acid gasses are exaggerated. Unnecessary height also represents unnecessary cost.

Translated this means that many of the airborne pollutants will fall on the local environment.

The Bird Islands, an International Biological Program site, an Ecological Seabird Preservation site, located only 7.5 kilometers from Point Aconi, will be subjected to environmental degradation from this project, particularly if a short 100 meter stack is used. The global warming phenomenon will change prevailing wind patterns and put this preserve at risk. A tall stack is essential to preserve ecological integrity of these islands.

The Environmental Assessment Report does not address the environmental impact of the new transmission corridor for the Point Aconi power. The new corridor is not discussed in this report either with respect to the high voltage lines on adjacent landowners or the impact of the herbicide use for powerline clearing. Nova Scotia Power routinely and without review uses herbicides, strictly controlled in other jurisdictions that are persistent in the environment and it bio-accumulates. Why were these concerns not addressed in this Environmental Assessment Report? The delineation and assessment of the transportation corridor must be included if this report is to competently assess the project's environmental impact.

The water intake system will not be equipped with a return system for entrapped fish. This is unacceptable. Provisions for those facilities during a future retrofitting is not adequate. In addition, chlorination of pumphouse water is unacceptable because of its effects of this chlorine on the marine environment. Projected total environmental loading of chlorine, not its average concentration in discharge waters, is the crucial environmental consideration.

In conclusion, the Cape Breton Coalition for Environmental Protection recognizes the social need to maintain available coal industries.

The TransAlberta Energy Corporation has a division called Energy Systems in the business of consumption efficiency. They are doing research now into a low sulphur and nitrous oxide burner that gives a significant reduction of emissions causing acid rain, and it does it with a cost advantage of something like one-third in cases of retrofitting existing utility boilers when measured against the installation of a scrubber for sulphur dioxide removal, and selected catalytic reduction for nitrous oxide avoidance. In new plants these costs are even more attractive than conventional scrubber technology. (There's a scale plant in Cold Lake, Alberta, of this technology.)

The I.G.C.C., or integrated gasification combined cycle technology results in a significant reduction in the emissions causing acid rain because of the nature of forming the gas, and it provides a reduction in carbon dioxide by producing a 15 percent increase in efficiency. The integrated gasification combined cycle approach could reduce carbon dioxide simply from the efficiency, but TransAlberta Utility along with the Coal Association of Canada are promoting the idea of a demonstration project that would institute a water phase shift in this process which theoretically could reduce carbon dioxide emissions by 100 percent.

The components of the gas created by the I.G.C.C. process, for example, are carbon monoxide, carbon dioxide, and hydrogen. A water phase shift introduces and co-mingles water with the carbon monoxide and produces hydrogen and carbon dioxide. The carbon dioxide can be extracted economically at this point.

These combined technologies, the I.G.C.C. and the water phase shift, produces clean hydrogen fuel and economically extractable carbon dioxide from coal.

Why is the Nova Scotia Government not involved in developing these technologies that offer clean coal generation and the exciting prospect of a exportable technology that is clean and efficient? How better to ensure the long-term viability of the Nova Scotia coal industry than to be developing these new technologies and replacing our unscrubbed coal-fired plants with new hydrogen from coal-fired plants.

Ken McCready, the President and Chief Executive Officer of the TransAlberta Utilities has some suggestions on how utilities are going to get involved in the research and development of these alternative technologies, and I'd like to quote from Mr. McCready. This was in a report to the Standing Committee on the Environment.

> We feel there's an urgent need for research on application. We think the best way to get industry's shoulder to the wheel is to bring environmental costs into our cost structure, so that we are making our decisions on that basis.

I think for this Environmental Assessment to have any credibility, I think these environmental costs have to first be addressed and somehow included into this formula so that the true cost of the production of this coal-fired power is compared to the alternatives, in particular with respect to energy efficiency, and conservation, and privately produced power at a reasonable rate of return.

With that said, the Cape Breton Environmental Coalition requests that the Minister of the Environment under Section 14(b) appoint a committee to review the Environmental Assessment Report, and any other aspect of the undertaking for the purpose of advising the Minister on matters relating to the undertaking and regarding any conditions which may be desireable if the undertaking proceeds, because there are a number of these issues that haven't been adequately addressed, and no sensible conclusion about this project can be made unless this is done, and I would strongly suggest that there be public involvement in that process, in the planning stages, not just a presentation of a *fait accompli*, that we're very politely listened to, and none of our concerns addressed or responded to. Thank you very much.

MR. JAMES HARRISON:

Thank you. I neglected to thank the previous speaker also, because you brought up some concerns that haven't been mentioned before.

Now we'll go onto the -- We'll have a short break and then we'll have the presentation by the Bras d'Or North Community Development Group, and then follow that with a question period. So while you are mingling in the next 15 minutes, perhaps you could be thinking up questions that you might ask later on.

HEARING RECESS AT: 2:12 p.m., AND RECONVENED AT: 2:34 p.m.

MR. JAMES HARRISON:

Ladies and Gentlemen, will you please take your seats again and we'll proceed? Ladies and Gentlemen, please take your seats.

Our next presentation will be given on behalf of the Bras d'Or North Community Development Group and the presenter will be Mr. Melvin Howley. And then after that, we'll have a question period where you can direct questions at any of the presenters that have appeared this afternoon.

Mr. Howley, do you swear that the evidence which you are about to present at this hearing shall be the truth, so help you God? If so, answer "I so swear".

MR. MELVIN HOWLEY:

I so swear.

Good afternoon, Ladies and Gentlemen. My name is Mel Howley and I represent a small group of interested individuals that are basically life-long residents of this area, and we have discussed some concerns that we feel should be brought out here this afternoon. I will list these in point form, and if you will bear with me, I shall get on.

Our first basic concern is where are the high voltage lines going to be established from the new proposed plant? These lines give us cause for concern because we would like to see them kept removed from any residential or school areas. Keep them as far away as possible because although it's not a proven fact, there has sometimes been a health hazard associated with these lines.

So with a little foresight, hopefully on behalf of the plant or the people at N.S.P.C., will eliminate maybe some problems later on. And basically the point there is if you've ever driven your automobile underneath a high tension wire, you know that you do get some interference.

The second part of that is is there going to be any other transmission lines run at a later date; if so, where are they going to be located?

A point that was raised earlier is the issue of water. How much is going to be used? Basically how much is going to be salt water and how much is going to be fresh? Is it going to affect the local water table? With the new plant, is there going to be cooling towers located here? And when I say "cooling towers", what I mean by that is the water that's used to coal the generators, is it going to be just dumped back in the ocean, or it will pass through the towers which is the environmentally safe thing to do? And the reason being, if it's not, it'll produce a hazard to the local fishing industry.

One of the ingredients used at this plant is limestone. Where is it coming from? How is it going to arrive at the plant? And how much is going to be used per year? I live on basic -- I life adjacent to the Trans-Canada Highway and there are enough large trucks on the road right now, so we don't need any more traffic hazards.

The next point, the energy that is produced at this plant, is it for resale or it's going to be used in Nova Scotia? Is it going to have any effect on our utility bill? Basically, are we going to receive any benefit from the plant in terms of our electrical rates being lower? Something that we all can identify with.

The next point, how is the limestone/ash mixture going to be disposed of? Where is it going to be disposed of, and how many -- approximately how many tonnes per year are we looking at?

The next point, are there going to be any scrubbers installed on the stacks to prevent any solid particles from entering the air? Will this plant produce any foul odors? If any of you people have ever been near a pulp and paper plant, believe me, I would not like to live there.

Now an interesting article I just seen in the paper this morning was they were talking about the amount of CO_2 emissions that's going to be put in the air by the proposed plant. I'm really not that knowledgeable about the ill-effects of CO_2, but the figure that was quoted in the Chronicle today was approximately, I think, 1.1 billion, not million, billion kilograms. Now that seems to be an awful lot to me. I mean, do we want that much CO_2 in our local environment or in our local atmosphere? So it's a question that I'd like to see addressed.

Okay, I'm basically winding up. There's been many reports of how much the plant is going to cost. They've ranged from $180 million, a low, to $436 million. The thing is, you know, what is the exact figure? If the Power Commission can't nail down a reasonable estimate on the cost of the plant, well then maybe we should -- You know, are they all that --- What's the word I'm looking for? You know, are there -- Is their information all that accurate? Something to give some thought to.

I'm winding up. As I said before, I'm just a small member of an organization. We're not pro. We're not con. There no doubt would be many benefits from the plant being built in Point Aconi to the local area which is something that, I think, we have to weigh, but I think we all have to work together if we are to see the plant become a reality. And I think with the intelligence that's been shown here this afternoon, we can reach a reasonable decision that will please most of the people.

Thank you very much.

MR. JAMES HARRISON:

Thank you, Mr. Howley. Would you kindly deliver your notes to Mrs. Lewis at the back of the room, at the very back, and we'll get them typed.

We are now open for questions and comments that you may wish to ask the presenters. I would ask, as I did this morning, that you use the microphone, that you identify yourself very clearly by name and place of residence so we have it on the tape. If you don't use the mike, you won't be picked up on the transcribing tape.

Is there a first question from the audience? Is there a second question from the audience? Everybody's afraid to make the first one, but --

MS. ROBERTA BRUCE:

Hi, my name is Roberta Bruce. I'm a member of the Coalition for Environmental Protection. I'm also Chairperson of the Environment Committee for the National Action Committee on the Status of Women.

Mr. Lethbridge, I came late. I didn't catch all of your presentation, but I'm just wondering if there is funding available to update the technology as more state of the art equipment would become available? Have you allotted for that in your plan?

MR. GERALD LETHBRIDGE:

Are you suggesting that the C.F.B. technology, the process itself?

MS. ROBERTA BRUCE:

Yes.

MR. GERALD LETHBRIDGE:

No, this is state of the art for Circulating Fluidized Bed technology. It's as efficient insofar as generation is concerned. It does have all the characteristics of minimizing sulphur dioxide and oxide nitrogen formation. It is state of the art.

MS. ROBERTA BRUCE:

But if next week a new state of the art comes upon us, what are you going to do?

MR. GERALD LETHBRIDGE:

Oh, sure, it's no question and it is a -- There's no doubt that it is a problem for the utilities and for anybody that's in business that technology -- computer technology is a prime example. If you buy a computer today, and you expect to use it for ten years, then in five years the potential is there that the supplier won't be supporting it.

MS. ROBERTA BRUCE:

Yes. So do you have funding set aside somewhere to look after all of that?

MR. GERALD LETHBRIDGE:

We in -- This plant has an expected life of 35 years, and it will be supported for 35 years. It is a relatively new technology. It's only been developed anywhere in the world for about the past ten years. The suppliers certainly give us every assurance that it will be supported for the life of the plant.

MS. ROBERTA BRUCE:

Thank you. Just a statement like globally this is such an issue and industry can and must be pollution free in the future. There's people all over the world who are working toward that end and I just hope that you people are with them.

I'm wondering about the Committee and how they were appointed and what powers they have. Is it just a power to report back or can you make real hard suggestions and recommendations?

MR. JAMES HARRISON:

Our mandate, as I mentioned earlier, is to --

MS. ROBERTA BRUCE:

I'm sorry, I wasn't here.

MR. JAMES HARRISON:

-- look into the aspects, the environmental aspects of the project. And we make our recommendation as to the environmental viability of the project to the Minister, the Minister of the Environment, and he can either accept it or not accept it under the provisions of the Act.

MS. ROBERTA BRUCE:

I see. Yes, and I suppose there's some literature at the back on who you are and why you are, so maybe I shouldn't ask that now, or will it take much time?

MR. JAMES HARRISON:

I couldn't hear you.

MS. ROBERTA BRUCE:

I'm just wondering who you people are on the Committee and why you're there.

MR. JAMES HARRISON:

These people?

MS. ROBERTA BRUCE:

Your names, yes.

MR. JAMES HARRISON:

Oh, you weren't here earlier then?

MS. ROBERTA BRUCE:

No, I'm sorry. So if I'm taking up too much time, I'll gladly read it or whatever.

MR. JAMES HARRISON:

Well, the names are -- Do you want more than the names?

MS. ROBERTA BRUCE:

Yes.

MR. JAMES HARRISON:

There's a brief bio down on the -- at the back that Laurie Lewis has on the Members.

MS. ROBERTA BRUCE:

Okay, thank you very much. Thank you.

I'd just also like to thank the people who came and presented themselves from their heart out of a fear or out of a concern because transmission lines are a big concern for a lot of people as well as, you know, industry, such as, fisheries as well as coal, and of course, the state of the environment. Thank you.

MR. JAMES HARRISON:

Mr. Niesten.

MR. HENK NIESTEN:

Yeh, Mr. Chairman, in my presentation I made before, I have had some questions, and I was wondering if some of those could be answered at the present time. If I can -- If I may, I can recall the question, we'd like to see our concerns monitored on a daily basis and preferably by a representation from Nova Scotia Power and from the community, and we'd also like to see a committee or body put in place that can negotiate between parties in case of complaints or concerns raised. Thank you.

MR. OSMUNDO BETANCOURT:

Thank you, Mr. Chairman. Mr. Niesten, I will endeavour to answer the three questions that you had asked. Indeed we will be monitoring the water table, so that we make sure that we know if there's any particular problem with drawdown in the well areas in the community. I think that you -- I would like to mention to you that we have -- we don't anticipate that to happen at all, but we will have a monitoring program to do that.

We are also going to be monitoring air quality as we have for the past year or so. We're going to be adding another monitoring station and we will make sure that we have it located in the proper area to satisfy your concerns.

With respect to the committee, we would be delighted to be able to work with you. You probably know that we have been here in this area a number of times. And it is just a delight for us to be here and talk to people and explain what we are doing, and get the feedback. And it was of tremendous help to us, in fact, that the community pointed out a number of things that probably we wouldn't have thought of unless we had spoken to them, so we would be delighted to be in touch with you and work in a form of a committee, if you want, to address any particular concern that you may have.

MR. HENK NIESTEN:

Okay. I think you very much, and I also like to thank you for the opportunity.

MR. GERALD LETHBRIDGE:

Perhaps if I could add some additional information particularly on the question that you asked and, I think, that somebody else also asked about the water table.

We have done extensive studies on the water table, and I believe that you're aware of some of the work that has been done. Most recently we did a 16-day pumping test that was pumped at a rate of about 2300 litres per minute which will be the requirement for a full three-unit station. And you're aware, of course, that we're only applying for the approval for one unit here, so we're talking about something like 900 litres per minute would be the requirements that we need for the plant.

Now in the work that has been done by qualified hydrogeologists, we're given to understand that the recharge rate in the area that we're talking about is something in the order of 3500 litres per minute and that is on a dry year. On an average year, the figure is up to about 5500 litres per minute. So we believe that by staging the project wherein one unit will go in, we'll certainly be monitoring wells all around the area, checking to see what the water levels are and so on, and in recognition of the information that we have on recharge rates, we believe that there should be really no problem at all.

Now if there is a problem even beyond this, if we get through three units, and if there is a problem with lowering well levels and so on, we do have other alternatives to draw water from other sources. The Point Aconi Brook is a potential surface water source where we could pump some of that water across to the present Cape Breton Development Corporation impoundment, and we could supplement the water that we take from the well with these other sources. So we don't really think that there's a great concern about the water levels, fresh water levels in wells in any of the surrounding area; however, we will be monitoring and continuing to work with the local citizens and so on to assure that, in fact, there's no problem.

MR. HENK NIESTEN:

If I may take up some more of your time then, what we'd like to see is instead of just Nova Scotia Power Corporation checking those levels, we'd like to see an individual, either a neutral body or someone from the community, or somebody from the farming community or a combination of those, do the checking with you. I mean we're not saying that we don't trust you. It's a matter of principal, I guess. In the past, we have had some trouble with water here before on the Boularderie Island when we had our mine here, our strip mine operations. A lot of people lost their water. Some of the farming community had to go for deeper wells. So that's why we although -- And we were guaranteed there would be no influence of our water table, you see, so that's why we'd like to have something in place beforehand.

MR. OSMUNDO BETANCOURT:

May I, Mr. Chairman?

MR. JAMES HARRISON:

Are you still talking on the water table?

MR. OSMUNDO BETANCOURT:

Yes.

MR. JAMES HARRISON:

Yeh. Okay.

MR. OSMUNDO BETANCOURT:

I would just like to mention to Mr. Niesten that I believe we can work out -- when we discuss with the committee, that I'm certain you would be part of, to work together on the monitoring, so we don't expect that we alone would do it, but we would do it with you.

MR. JAMES HARRISON:

Do you have a question?

MR. BRUNO MARCOCCHIO:

Yes, I have some specific questions, a few for Nova Scotia Power, one of them with respect to stack monitoring you mentioned in a report, although you did not define the parameters of the stack monitoring that you intend to carry out on the emissions. Could you please be specific?

MR. OSMUNDO BETANCOURT:

We do regularly monitoring in our stacks for sulphur dioxide and nitrogen oxide, and particulate matter, all of which are part of our permits.

MR. BRUNO MARCOCCHIO:

You don't do any monitoring for any of the heavy metals or any of the chlorine compounds? You don't do any chlorine testing?

MR. OSMUNDO BETANCOURT:

We have done a major study together with the Canadian Electrical Association, not only Nova Scotia Power, but a number of utilities in Canada. We completed a study on trace elements from our emissions, I believe in 1986 or '87, a major study, and so we are aware of the emissions of trace --

MR. BRUNO MARCOCCHIO:

Are you planning on measuring the total unburnt hydrocarbon fraction of the emission gases? You know that's a relatively sensitive --

MR. OSMUNDO BETANCOURT:

Yes. We are -- We are not planning to do that. We are aware of what is in those emissions. Ontario Hydro undertook similar tests and we are quite aware of the results.

MR. BRUNO MARCOCCHIO:

Does Ontario Hydro have a Circulating Fluidized Bed system in their --

MR. OSMUNDO BETANCOURT:

The emission is -- would be the same basically from any combustion process, so it doesn't -- it wouldn't change from --

MR. BRUNO MARCOCCHIO:

So your short answer is that no, you're not going to be monitoring those emissions?

MR. OSMUNDO BETANCOURT:

We do not believe that it is necessary.

MR. BRUNO MARCOCCHIO:

I have some more specific questions about the performance parameters and criteria for this project. I read you a report this morning a the Nova Scotia Power representative who seriously questioned the ability -- your ability to be able to scrub 90 percent of the sulphur dioxide emissions out with the amount of limestone that you use. I would like to know from -- I would like you to comment on it, and I would like to know from Mr. Harrison, perhaps, what sort of performance guarantees the people of Nova Scotia can expect.

Another question I'd like you to respond to is will the public have access to your monitoring data? Will that be made public?

MR. OSMUNDO BETANCOURT:

Perhaps Mr. Lethbridge can address the question.

MR. GERALD LETHBRIDGE:

In respect of the comment about a Donald MacDonald, who is plant manager at Chatham, there was a reporter from one of the local papers contacted Mr. MacDonald a week or so ago and got some information from him. I talked with Mr. MacDonald on Monday this week, two days ago. I'm sure he'd be quite prepared to tell you what he told me. And what he told me was as follows, that Mr. MacDonald and, in fact, New Brunswick Electric Power Corporation are well pleased with the way that the Chatham unit is operating now, as are the operators themselves, the people who are running the unit. Mr. MacDonald also indicated that he was very disturbed about the article in the paper in that he was quoted out of context and none of the positive aspects of the Chatham plant were reported. So what I'm saying, sir, is that New Brunswick -- on that demonstration plant, New Brunswick are quite satisfied with the way that that particular unit is running right now. The article that you referred to was completely --

MR. BRUNO MARCOCCHIO:

There was no question that they were not pleased with the performance of their coal-fired unit. My question to you specifically was, will you have performance parameters?

MR. GERALD LETHBRIDGE:

Yes.

MR. BRUNO MARCOCCHIO:

Will you guarantee the people of Nova Scotia that you will scrub 90 percent of those sulfur dioxide emissions out of there?

MR. GERALD LETHBRIDGE:

Yes, we do.

MR. BRUNO MARCOCCHIO:

If it takes considerably more than a third of a pound of limestone per pound of coal, will you use that?

MR. GERALD LETHBRIDGE:

The -- We have guarantees on emission control, the calcium/sulfur ratio, efficiency of the plant, total output. We have all these guarantees from the supplier of the system.

MR. BRUNO MARCOCCHIO:

So you will meet those 90 percent in sulfur dioxide emissions?

MR. GERALD LETHBRIDGE:

Yes. Yes, sir. We have guarantees of that --

MR. BRUNO MARCOCCHIO:

Will your monitoring of that be publicly available?

MR. GERALD LETHBRIDGE:

Pardon?

MR. BRUNO MARCOCCHIO:

Will I be able to see the results of your stack monitoring program, your sulfide dioxide emissions program?

MR. OSMUNDO BETANCOURT:

We report all that information to the Nova Scotia Department of Environment. Basically, we tell them that they can provide it to whoever wants to see the information. I guess you'd probably have to appreciate that we are in the business of producing electricity. We don't want to get into reporting to hundreds of people out there. We would be very happy if the Nova Scotia Department of Environment had a mechanism where people can, in fact, look at our performance but I think that would be up to them to do.

MR. BRUNO MARCOCCHIO:

Mr. Chairman, I have a specific question that I think I asked during my presentation with respect to intervenor funding. I would like you to respond on why intervenor funding was not granted to the members interested in making presentations here.

MR. JAMES HARRISON:

I don't know that any requests were made to our Environmental Control Council for intervenor funding for this particular hearing. I'm not aware of that. Maybe -- did something go into the Department? I'm not aware of that. But I will say this, that the Council has been involved in some preliminary discussions on intervenor funding, and I know it's available in some jurisdictions in Canada but there's nothing in the present legislation in Nova Scotia that provides that. And I guess one of the problems that Council had in its short discussions last fall was how do you determine status, and I don't want to get into a discussion of that right now but this is one of the problems we had, who do you fund.

You asked a question also about the performance and the analysis, whether they'd be available. I guess I was going to say that it's not a function of our Environmental Control Council to monitor a plant, wherever it might be. That's the function of the monitoring group in the Nova Scotia Department of the Environment. So the information would be there and I presume-- I don't know what distribution the results have. I don't --

MR. BRUNO MARCOCCHIO:

My concern is that without specific parameters, there's really no gauge, and I think it is within in the mandate of this Control Council to look at those things, to look at performance guarantees and monitoring criteria, to be able to effectively gauge the environmental impact of this project. Don't you agree that until that's done you really haven't done your job?

MR. JAMES HARRISON:

Well, we certainly will consider that, yeh.

MR. BRUNO MARCOCCHIO:

Thank you.

MR. JAMES HARRISON:

Anybody else?

MR. JOE BURKE:

Thank you, Mr. Chairman. Maybe I have some remarks --

MR. JAMES HARRISON:

Would you please identify yourself?

MR. JOE BURKE:

Yes, I would. It's Joe Burke, President of the United Mine Workers of America who -- this United Mine Workers of America went and lobbied quite hard for this generating station for the Northside. We are 100 percent in favour of it.

Now, I can understand the concerns of the environmentalists and other people. But then again, it's down to the nitty-gritty, I guess, if that you have jobs or you don't have jobs. And I believe in, number one, is bread and butter on the table. And that's our concern, that the jobs are badly needed in the area, and it is our coal industry that is going to survive.

Now where coal is supposed to be this bad bogey man or the bad wolf, I wonder if the environmentalists went and had a copy of a study that was done in Denver, Colorado, which coal was supposed to be the culprit. And lo and behold, when the study was done by the United Mine Workers of America and the environmentalists and the government at the cost of over a million dollars, it proved that coal was not the culprit at all. It was the lowest on the totem pole.

Now what was the problem was construction, the dust from construction, it was the airplanes flying, it was the cars, the trucks, the gas, you name it. But coal was not the big culprit. And I'm just wondering, like I say, you know when people are coming and try to down something, that I'm sure that every avenue should be explored. I have a copy that's in the Miner's Journal, and if some would wish it, all they have to do is contact the District Office and I would give them a copy but to get the complete study, they would have to get in touch with the government in the United States. And that study is done and it's proven successful, and it wasn't coal that was the culprit.

So thank you for the opportunity to appear. Like I say, jobs is our number one and our coal industry is number one. And it's not dirty. I'm proud, I've been a coal miner for 38 years. I've been leader of District 26 for eight years -- for four years, and safety inspector for eight years, and also served on Council for eleven years. So thank you for the opportunity to speak.

MR. JAMES HARRISON:

Thank you. Does somebody have a question for any of the presenters? Mr. Betancourt?

MR. OSMUNDO BETANCOURT:

What I would like to mention, Mr. Chairman, is that there a number of things that have been raised throughout the day today. Some people have asked for some answers to those questions and perhaps if you could provide an opportunity for us to address some of those.

MR. JAMES HARRISON:

Do you have notes regarding the questions? Do you have the questions down?

MR. OSMUNDO BETANCOURT:

It is over ten questions already that we would like to give some answer to.

MR. MELVIN HOWLEY:

Mr. Chairman, could I ask just a couple of questions before --

MR. JAMES HARRISON:

Go ahead.

MR. MELVIN HOWLEY:

Okay. I can understand Mr. Burke's concern, and to a degree I agree with him. I mean, in Nova Scotia we only have three basically ways to generate electricity, oil, which is rather expensive and would the folks that are say against the idea of a coal generating plant, would they welcome a nuclear plant down there? Well, for one myself, no, give me the coal. I think it's the way to go in this area. But, I mean, we have -- you people have to look at some of our concerns, and perhaps somebody would like to answer the one I raised about the high voltage lines. Have you decided, have you put any thought into where they are actually going to go? Would somebody like to answer that one?

MR. JAMES HARRISON:

Would somebody from the Power Corporation respond?

MR. GERALD LETHBRIDGE:

Are you asking specifically about the location?

MR. MELVIN HOWLEY:

Yes, sir.

MR. GERALD LETHBRIDGE:

Yeh. Well, the final location of the line from Point Aconi to where we'll be tying in to the -- what we call the back bone transmission system which is a little community called Woodbine over on the other side of the Number Four Highway, down below Blackett's Lake, on the other side of Blackett's Lake somewhere. The final location isn't specifically known at this time. We have land agents presently that are looking -- together with our engineering people looking at the specific routing and in consideration of, I guess, the experience that we've had in the past, we have a general philosophy, certainly, that all of our transmission lines will be located as innocuously as possible, i.e., away from people's backyards and out of sight, basically as back far out of the way as we can possibly get them. And this is the general philosophy that we follow. But I don't -- you know, we can't tell you more than that right now because we don't know exactly where it's going to go.

MR. MELVIN HOWLEY:

Okay. If you -- I think most of us would be very pleased if you do plan them in areas, as you say, as far removed from the general population as possible. The cooling towers, is this plant going to have cooling towers to eliminate dispersing warm water back into the ocean?

MR. GERALD LETHBRIDGE:

No, there will be no cooling towers at this plant.

MR. MELVIN HOWLEY:

Could you then explain to us how you are going to recycle the water back into the ocean?

MR. OSMUNDO BETANCOURT:

Yes, we are going to have -- we require cooling water to condense steam from the turbine. And what we are going to do is we're going to build a tunnel that will extend under the seabed for about a kilometre outside, and there will be an intake there. That water will serve the plant for all the cooling requirements and then discharge via an onshore structure just north of where the plant is located.

MR. MELVIN HOWLEY:

So if I understand you correctly, sir, the water, that after it is passed through the generators --

MR. OSMUNDO BETANCOURT:

The condensers.

MR. MELVIN HOWLEY:

The condensers. It's going to be dispersed on the surface?

MR. OSMUNDO BETANCOURT:

Yes, correct. There will be an onshore structure extending about approximately a hundred meters out, and the water will be discharged there.

MR. MELVIN HOWLEY:

Do you know if this is as efficient as the cooling towers? Is this idea just as good as the cooling towers?

MR. OSMUNDO BETANCOURT:

This is what we have at all the generating stations, this one method of cooling water. And by far, it's one of the best ways of doing it, environmentally and otherwise.

MR. MELVIN HOWLEY:

Okay, thank you very much. I think that answers some of our questions. And I'd like to thank you folks for taking the opportunity to listen to some of our concerns.

MR. JAMES HARRISON:

Thank you. Now Mr. Betancourt, you had a list of questions that were asked previously that you had some remarks to make about those. Go ahead.

MR. OSMUNDO BETANCOURT:

Thank you. I think that probably -- perhaps because it has been raised a number of times, we should indicate to those at the meeting today what our thinking is on the question of CO_2 emissions. Basically, today there are scientists who would like to conclude that anthroprogenic emissions of CO_2 add to the greenhouse effect. Other scientists would say that they don't. Basically it is at this point a theory. It is a theory. Many scientist, very skillful scientists, are trying to deal with the question and we all our paying a lot of attention, because the consequences of the kind of theories that have been advanced are drastic, and therefore we all should be paying attention. But we should at least try and recognize that it is a theory and that very drastic measures cannot be taken based on theories.

We do know, however, we have the message, we all are part of society. Nova Scotia Power Corporation employees are no different from employees from any other places, and we are quite aware that society today demands that we do things efficiently with regard to resources, that we treat the environment in the way it should be, and that we should leave this environment to our children in good condition so that they can use it, take advantage of it, and live with a high standard of living.

Now, rightly or wrongly we live and are part of a consumer society. Utilities do not create demand for electricity. They rather produce electricity to meet the demands of the public. We can all collectively work towards reducing those demands on electricity, and as a result we would learn to practice better management of our resources. But it is a solution that involves all of us. It is not a solution -- it is not a Nova Scotia Power Corporation solution. It is a solution of the whole society.

One thing that has not been mentioned here today, and I think that we should perhaps mention it now, is that carbon dioxide emissions from coal generation worldwide are only eight percent of the total carbon dioxide emissions. So we have many other sources of carbon dioxide out there that society has to deal with.

Perhaps I would just concentrate right within this room. We came here today, we must have used some means of transportation, automobiles, airplanes, trains, buses, and of course, all of those burn fuels and produce carbon dioxide. This room is heated, it is lighted, and it is using electricity for the various presentations. The proceedings are being filmed by various media people, and they are consuming electricity. There is a high wattage -- there are high-wattage lights that are being used for recording these proceedings. We all consume foodstuffs which could be frozen, refrigerated. We like to consume foodstuff that is fresh in the winter. We either freeze, refrigerate, or bring from the South using, of course, means of transportation that consume fossil fuels and produce carbon dioxide. And if you really look around yourselves, for everything that you see in this room, energy has been consumed. For the clothes that we're wearing, for the furniture, for this structure that has been built here. So basically there are a lot of things the we demand as a society which is set in a standard of living, and as a result there is an energy consumption.

We all can do our part to reduce consumption, to be more efficient. I don't think that one wants to engage, on the question of CO_2, in a debate, in a scientific debate. I mean, it is a very complex issue which is being discussed by scientists at this point. But I will just point out to you a couple of things that have come out as a result of a lot of work from various scientists. The normal natural change of cloud cover could have an effect ten times the size of that of the demand to use CO_2. Cyclical change in the intensity of radiation from the sun can totally overwhelm the effects of CO_2, and in fact some scientists are predicting a mini ice age in the next century. I am not saying this at all to engage in science here. I'm just saying that there are opinions, there are theories, and I think that taking drastic measure is not, at this point, a very wise move.

MR. JAMES HARRISON:

Mr. Betancourt, we're getting pressed for time through the afternoon. You said you had ten questions, and I've heard about two. Can you speed it up a bit?

MR. OSMUNDO BETANCOURT:

Do you want me to finish this one and enter the next, or --

MR. JAMES HARRISON:

Well, speed it up a bit, I think.

MR. OSMUNDO BETANCOURT:

I think that we want to be part of the solution for sure. And I think that we'd be all better off if we start consuming more wisely but it's got to be an effort by all of us.

I would like to, perhaps, say a couple of words on the ash -- the statements that were made about the ash, the toxicity of the ash. The ash that we will have from this plant basically contains just the normal coal ash plus hydrated gypsum. That material that is put as a cast on your leg if you break a bone, for instance, that is the composition of the ash that we're going to have. It's going to be a very alkaline material, or an alkaline material which, in itself, chemically is going to immobilize heavy metals. Not only is it chemically going to immobilize the heavy metals, but physically it is also going to immobilize the heavy metal because it is a concrete-like material. So there is nothing that you could leach from it.

We have -- somebody mentioned that it contains a number of elements. Yes, everything that comes from nature contains just about every element listed in the chemical table of elements and wood does, too. Just everything that is natural does. The problem is when we talk about toxicity, it's not what is there but what is the exposure of the individual to those things. Low exposure would cause no problem, high exposure would. So that's how one should view toxicity, rather than perhaps citing that there are such and such and such and such elements in it.

I guess very quickly if I could mention that the -- with respect to the point that was made of Bird Islands. We are very aware of the Bird Islands, and all of our studies indicate, in fact, that there is going to be only four percent of the time that there is going to be any wind blowing in that direction. And that, in fact, in our studies, Bird Islands were not identified at all with any kind of concentration of sulfur dioxide or nitrogen dioxide that would be of any consequence.

I think I'll stop there Mr. Chairman. If there are some other questions that perhaps I have forgotten to answer, maybe I can be reminded.

MR. JAMES HARRISON:

Okay, thank you. You had a question.

MR. PAUL MILLER:

My name is Paul Miller. I'm from Sackville, Nova Scotia. I don't have a question but I have a comment.

My comment is not directed to this proposal, or even to this hearing, but to the process under the Environmental Assessment Act. As this is the first hearing under this new legislation, I thought that it would be appropriate to comment on what I consider to be three deficiencies of the Act and Regulations which I think that this Council can take into consideration and perhaps make recommendation in relation to.

The first deficiency that I see is a deficiency with -- in that the Act and the Regulations is not specific with reference to the timing and the extent or method of citizen input into the process. Certainly guidance is going to be needed there. The Council itself, I think, can develop its own procedures and policies and perhaps over time the Regulations can spell out more precisely the extent and timing of citizen input.

The second concern I have is the disclosure and exchange of relevant information. Again, I believe that the Act and the Regulations are not precise enough. There's going to have to be policies and procedures developed. But obviously if there's not timely disclosure of information, then that's going to affect the input that you're going to get back from citizen groups.

The third deficiency, and this is the one that concerns me most, is what I consider to be the unrealistic short periods of time that citizens groups have to prepare for hearings. I have acted as counsel for resident groups in two previous Environmental Control Council hearings. They were called under the Environmental Protection Act. So I've had experience in preparing cases for hearings such as this. And I can assure you that the time frames that are allowed under the Environmental Assessment Act are woefully inadequate to prepare realistic input except in circumstances where you have a very narrow, single issue. In any kind of a complex proposal at all, there's not sufficient time under the Act to prepare. That would probably require a change in the legislation or a change to allow more flexibility. I understand from reading the legislation that the Minister can extend time frames, but certainly the legislation shouldn't be so narrow that the Council would have to go to the Minister every time that they needed an extension, and should have some more flexibility to address the different types of issues that are going to come before a Control Council.

I think the whole purpose of the Act -- and I was involved in the preliminary feedback process when the Act was under consideration. The whole purpose of it was to encourage meaningful and realistic citizen input. And I think that's still the purpose of the Act. And I think that probably, as time goes on and there are more hearings like this, the procedures will probably be outlined which will, hopefully, encourage that purpose and try and fulfill it. But I think that these deficiencies that I've outlined should be addressed, not only by the Council in the formulation of the procedures that the Council uses for meetings, but also in their recommendations to the Minister and particularly the recommendation I hope would come from this Council with reference to the time frames that citizens have to prepare for hearings such as this. Thank you.

MR. JAMES HARRISON:

I'd like to thank you for those comments because I think they are very valuable and really it was part of my closing remarks this afternoon to say that this is a learning experience, and I hate to use that hackneyed phrase, but a learning experience for Members of the Council in conducting this process. We hope we learn from it and we hope we'll be able to provide some assistance to future panels as they address these environmental issues, but thank you for your good comments.

Shirley Nicholson had a comment she wanted to make.

MS. SHIRLEY NICHOLSON:

I would just like to ask could we please have a copy of your comments that you just made?

MR. PAUL MILLER:

I didn't speak from a prepared text so I guess the only copy you're going to get is from the tape.

MS. SHIRLEY NICHOLSON:

Very good. Thank you. And just -- I don't wish to open a hornets nest, but I have heard this referred to a few times today. You're saying that you don't have enough time within the -- You feel there are restrictions in the Act to allow enough time for proper presentation. Have you ever thought of making a presentation to any one on those restrictions?

MR. PAUL MILLER:

I've discussed it with members of the Department of Environment and in the future, I will be discussing it on specific projects with this Council.

MS. SHIRLEY NICHOLSON:

Very good.

MR. PAUL MILLER:

So it is something that has been addressed before and will be addressed in the future.

MS. SHIRLEY NICHOLSON:

Thank you.

MR. JAMES HARRISON:

Questions? Yes.

MR. NEAL LIVINGSTON:

I have one short question about -- Mr. Betancourt was talking about CO_2 emissions and the position -- basically outlining the position the Power Corporation is taking on that. And I reported in my presentation this morning that Sweden has decided to cap a limit that they're not going to be increasing at all any more emissions in that country. And I'm -- you know, I'm just interested in the fact that the Power Corporation is taking a position which, I guess I would say, doesn't involve the greatest care in a sense that if there is a problem. We're continuing to increase the CO_2 emission in this country and the Power Corporation is part of that and I'm just interested in knowing why, if other countries in the world are taking this position, that the Power Corporation wouldn't be more interested in a, you know, position of restraint on this matter?

MR. OSMUNDO BETANCOURT:

Mr. Chairman, would you want me to say something to that?

MR. JAMES HARRISON:

Yes, go ahead.

MR. OSMUNDO BETANCOURT:

I guess we are not really taking a position, though we have indicated at least that we are -- we want to know the scientific evaluation of this issue. We are very concerned. We are doing a lot of things. I believe that Mr. Lethbridge indicated early in the day some of the things that are doing already on the issue. Certainly we are extremely aware of the discussions that are taking place and we will have to see what develops from it.

MR. JAMES HARRISON:

Any further questions?

MR. BRIAN BOUDREAU:

My name is Brian Boudreau and I'm President of Bras d'Or North Community Development with a couple questions, please.

The first question I have would be regarding the same lines as Mr. Niesten's, the monitoring system. I understand Nova Scotia Power will be putting a monitoring program in place and my concerns about that would be the same as what he has. Would it be Nova Scotia Power itself as the watchdog, or would it be an independent group or whatever have you?

And my second question would be I understand that there are going to be large stock piles, coal and limestone. I understand that a ground lining will be installed to protect the ground and the waterbeds underneath, but there was no mention of dust blowing, similar to the same problems that exist at Whitney Pier.

And I'd also like to ask regarding the transmission lines themselves and the ill effects, if there indeed -- if there is any, will be taking into consideration in construction of the plant.

MR. GERALD LETHBRIDGE:

On the question of dust from the coal pile, certainly consideration will be given to that from a number of aspects. On the live-storage pile, that's where coal is coming in and being taken out of the pile and taken to the bunkers, under those circumstances if the situation is such that the coal is so dry that it is blowing, we do intend to use trucks with water sprays. Some sort of a water spray arrangement will be used to eliminate the formation of dust. Insofar as the large pile is concerned, we'll likely put some kind of a oil emulsion spray or something over that to seal it, so that it won't blow around. The active part of the pile, we'll have to control as we work at it.

MR. OSMUNDO BETANCOURT:

With respect to the monitoring, as I indicated before we will be pleased to work with people from the community to ensure that the monitoring is satisfactory to both ourselves and yourselves.

With respect to transmission lines, you may be -- perhaps what you intended to indicate was is there any concerns with magnetic fields. Is that what you were trying to say?

MR. BRIAN BOUDREAU:

Well, I understand that in other communities where such power plants have been built that there has been trouble with wildlife, farm animals and, of course, there's a great concern about leukemia in children, causing leukemia in children. And I was just wondering if, you know, this would be taken into consideration.

MR. OSMUNDO BETANCOURT:

This is one other issue that we continuously monitor what is happening in the scientific community, and as you probably know the link has not been established between health effects and magnetic fields. It just hasn't been established. But there are -- again, there are theories. But what I wanted to mention to you is that we have undertaken to measure magnetic fields under our transmission lines and they are so low that they meet -- they would meet any of the criteria that are being applied throughout North America. We are very careful to insure that our design--

Basically designing to the Canadian electrical code, which we do, provides for a very low magnetic field that meets all of the requirements that are being -- perhaps that are being put in place in Florida, the state of New York and some other states. So we keep an eye on that and we are aware of the issue. And Mr. Lethbridge indicated that.

In addition to all of that, we do not want our lines to be right where people are in their houses and in their backyards and so on. So we always look for an opportunity to locate them as far away as we can from people, keeping in mind that there is an environment there that has to be protected. So there are areas that we don't want to go because of the environmental concerns, but certainly one of the top priorities is to be away from people with transmission lines.

MR. BRIAN BOUDREAU:

Okay. So this would come under the monitoring program also?

MR. OSMUNDO BETANCOURT:

I beg your pardon?

MR. BRIAN BOUDREAU:

Would this be included in the monitoring program?

MR. OSMUNDO BETANCOURT:

We periodically test our lines. That is something that doesn't change basically. But -- Yeh, one thing that we do at times is that if there is any particular family (Perhaps we've done that a lot of times.) that is concerned about a certain power line, what we do is we bring that meter in, we check the fields under the transmission line, but always ask ahead of time the particular family raising the issue, "Would you let us also check the fields inside your house?" And invariably, the fields inside the house are higher than under the transmission lines, because we live with electricity. I mean we have an oven, we have lights, we have various motors in the house and so on, so forth. So we have been able to communicate to families who have been concerned about transmission lines that just by using electricity, you are always exposed to a certain magnetic field, which is much larger than what you might be able to measure under the transmission line.

MR. BRIAN BOUDREAU:

Yes. Well, I understand that, but I also understand that there is grave concern in other communities when such power plants have been built that it is proven that children do come down with leukemia, and that farmers have trouble growing their crops, and also with their livestock dying.

MR. OSMUNDO BETANCOURT:

I agree with you that there are concerns. The part that I cannot agree with you is that it has been proven. That part I cannot agree with you, because I totally --

MR. BRIAN BOUDREAU:

Well, sir, I'll agree with you that it has not been proven. It also cannot be proven that it's wrong either.

MR. OSMUNDO BETANCOURT:

This issue has gone to court and to various commissions of inquiry. In Canada, for instance, there are two cases. In British Columbia and Alberta, the city of Edmonton, it has gone to a commission. Both sides, those who have expressed a concern over the health effect issues and the proponent of the particular transmission line, both sides have acquired expertise in the area. In every case, the verdict has been that the health effects are not proven. So the transmission lines have gone ahead. And these are very large, much larger public inquiries than this particular hearing that we have here today. So I-- this is why I mentioned to you that I cannot agree on the fact that it is a proven effect because larger bodies, after a lot of investigation and after hearing a lot of evidence from scientists, just -- they have concluded that there is not enough information to prove that there is a link between health effect and magnetic fields.

MR. BRIAN BOUDREAU:

Well, sir, I'm not -- You know, I'm not saying that there is a link, and I'm not saying that it is a proven fact. What I'm just asking is if it will be taken into consideration, like, with the final approval, --

MR. OSMUNDO BOUDREAU:

As I indicated to you, we design to Canadian Electric codes and those codes -- by meeting those codes, we are always below anything that has been stipulated in any jurisdiction that we know of.

MR. BRIAN BOUDREAU:

Okay. Thank you.

MR. JAMES HARRISON:

Is there one last question from somebody in the audience, or in the panel indeed, do you have any questions?

MR. MICHAEL McGILL:

I have one here. I've got several, but I can hang onto them until tonight, I guess. The fresh water supply, your report said, if I remember right, about 700 litres a minute for the first stage and 2200 or something for the three stages. There's three components to it and I think you quote some percentages for your boiler water, your domestic water, and your ash. In Mr. Lethbridge's presentation, he -- I believe he stated that some of your waste water would be used for your ash conditioning. Are you going to use some of your fresh water for ash conditioning as well? That's what I got from the report, anyway.

MR. GERALD LETHBRIDGE:

Yes, that's correct. But what I didn't say was the figure of 2200, 2300 litres per minute would in fact be offset by any of the recycled ash -- I'm sorry, any of the recycled water that we can get from the sedimentation pond that I mentioned. So every opportunity will be made to utilize, to recycle the water and use it and that, in fact then, will reduce that 2200 litres per minute to lesser numbers than that. So some of the -- Depending what the conditions are, Summertime, Wintertime conditions, it may be that some of the water will be used for conditioning of the ash at one stage or the other. Wherever we can, obviously, we will be recycling the leachates and the waste water for that purpose.

MR. JAMES HARRISON:

Thank you. Well, then this will conclude this afternoon's session and I would thank everybody that took part. As I say, there are concerns that were brought up that we hadn't heard before and it's been very helpful for the Members of the panel, the Members of the Council, and I thank you for taking part and we'll be back here at 7:00 o'clock tonight. Any of you that want to come back, you're quite welcome. Thank you very much.

HEARING RECESSED AT: 3:35 p.m., AND RECONVENED AT: 7:00 p.m.

MR. JAMES HARRISON:

Ladies and Gentlemen, would you take your seats, please, and we'll commence this evenings proceedings.

First of all, on behalf of the Environmental Control Council representatives, I'd like to think you for being present because we realize everybody has busy schedules, and we're glad to see people come out and present their views.

My name is Jim Harrison and I'll be Chairman of this meeting here at Point Aconi. My colleagues here are Shirley Nicholson and Mike McGill, and we've been delegated by the Nova Scotia Environmental Control Council to hear your comments about the electrical generating station proposed by the Nova Scotia Power Corporation for the Point Aconi area.

My responsibility is simply to make sure that all of you have a chance to ask questions and anyone who wishes to make a statement can do so.

I wanted to add also a few words about the events leading up to this meeting.

This particular undertaking was registered by the Nova Scotia Power Corporation on the 2nd of December, 1988, under the Environmental Protection Act. Then in the meantime, the Environmental Assessment Act came into effect on the 14th of July, 1989. And the Nova Scotia Power Corporation then voluntarily re-registered the undertaking under this new Act on the 28th of July.

The terms of reference for the Environmental Assessment Report, as is provided under the Act and the Regulations, were prepared and these were finalized with comments from interested Nova Scotians.

The Environmental Assessment Report was accepted and released by the Minister as noted in the Chronicle Herald newspaper ad of the 9th of December, with written comments invited by anyone by the 29th of January of this year. The matter that was then referred to the Environmental Control Council on the 11th of December last year.

The notices regarding the public meetings here in the Point Aconi Community Hall were published on the 12th, the 22nd and the 29th of December in the Chronicle Herald and also in the Cape Breton Post. And these ads ask that persons who wished to make oral or written presentations notify the Nova Scotia Environmental Control Council by the 10th of January, 1990. People that responded were then contacted by our staff, by the staff of the Department and scheduled into mutually acceptable time slots. And that's really where we are now.

The Environmental Assessment Act says -- when they talk about the Environmental Control Council, it says that the Council shall, first of all,

consult with the public,

recommend to the Minister of the Environment approval or disapproval of the undertaking, or the conditions which ought to be imposed upon an undertaking if it proceeds.

And then we also have a duty to perform any various -- any functions and exercise powers that are conferred upon the Council under the Acts, the Environmental Protection Act and the Environmental Assessment Act.

The Council then has the power to either appoint or authorize the Chairman of the Council to appoint a Committee of the Environmental Control Council to perform the functions and exercise any of the powers that the Council have. And our Nova Scotia Environmental Control Council at a regular meeting on the 8th of December -- 8th of November last year, authorized the formation of a three-person committee or panel for this with myself, Jim Harrison, as Chairman.

Now in considering the format of these meetings, the Council decided that the provisions under Regulation 10(1) of the Environmental Protection Act will be followed. That is, that these public consultations will be conducted in a relatively informal manner, so that the meeting procedures don't intimidate either you or indeed our Committee.

So our agenda will be as follows, and we've followed this through the piece today,

that the proponent, the Nova Scotia Power Corporation will give a brief description of the undertaking and the environmental impacts considered.

Those of you that have indicated you wish to be heard tonight will then proceed in the sequence arranged.

And I guess the other -- one of the other things I'd say is that before any of the formal presentations are made, the presenter will be asked to take an oath or affirmation.

And the other members of the public that are here that-- will have an opportunity to comment or ask questions after the presenters.

I'd ask also that any questions be directed to the Chair here and we'll try to then interpret them, if necessary, and redirect them to the appropriate person for a response.

I'd also say that all the proceedings are being transcribed, and therefore, when you make a presentation, we ask that you make sure to use the microphones, clearly identify yourself and the place of residence. And I'd say for the formal presentations please use this mike. We've had some comments earlier that people like to see the face of the person that's speaking. So if you have a -- There is a formal presentation after the Power Corporation presentation, then we'd ask that speaker, Mr. Beaton, to use this podium.

We've also provided the media here with work tables and request that any interviews or questions by the media be conducted outside the meeting room so we don't interrupt the proceedings. Also, we have asked that any preliminary camera "shots" be taking beforehand.

I guess that's all I have to say. I just want to ask if anyone has any questions regarding the structure of the meeting here tonight. I guess not.

So we will then proceed with the proponent's description of the undertaking and the two representatives from the Power Corporation will give that.

Before that begins, I just want to mention that we have been given a paper by Mr. Ronald Nicholson, Professional Engineer of the Cape Breton Development Company entitled "Cape Breton Coal and the Greenhouse Effect". This will be filed as an exhibit with our papers from the conference. It'll be available to people that want it. But I wanted to mention that it will be here.

So I now ask the representative of the Power Corporation to proceed with their presentation, please.

MR. TERRENCE MacDONALD:

Thank you, Mr. Chairman.

My name is Terry MacDonald. I'm Vice-President of Planning and Environment for Nova Scotia Power. With me this evening are Gerry Lethbridge who is Vice-President of Engineering and Production, and Osmundo Betancourt who is Director of Environmental Policy and Programs.

I'll make some introductory remarks about the project -- the Bluenose -- sorry, the Point Aconi project and why we're having it here tonight. Gerry Lethbridge will say a few words about the technology involved and address the environmental areas that we will be dealing with.

The first thing I would like to do very quickly is address the overall planning process at Nova Scotia Power. Nova Scotia Power does a lease cost planning process by addressing both demand and supply side options. We define objectives. We have clearly established criteria. We estimate our future customer requirements; by that, I mean the load forecast. We identify potential resource options including demand and supply side options. We assess the environmental issues. We integrate the resources into plans and we implement those plans which are most attractive. The overall planning process is ongoing and cyclical in nature.

We have a mandate to meet the needs of Nova Scotians for electric service at the lowest long term cost and acceptable standard of reliability. And we also have a mandate to contribute to the socio-economic development of the Province.

Our planning criteria address reliability, the environment, economics, finance and socio-economics. Reliability criteria address both the generation, transmission, and the distribution, and for transmission we have a single contingency criterion; that is that we should not have a system break-up for the loss of any one system element. Transmission -- The Distribution criterion is that of one supply per customer, but the generation criterion is the one I want to dwell on for a moment. We attempt to maintain a minimum of 20 percent planning reserve; that is, we have a forecast peak demand, and then we require 20 percent in excess of that to maintain an adequate level of reliability. And that is consistent with the common practice of all utilities across North America that have a basic thermal system as we do.

Environmental criteria are for a large part set by the Provincial Department of Environment. The Nova Scotia Power complies with all requirements. From an economic perspective, we attempt to provide the service at the lowest long term cost. Our financial criteria addresses early year impacts on rates, so that if a large project comes on line, we want to determine what the earlier costs may be on rates, and our socio-economic criteria require that we address the use of Nova Scotia resources to the extent economically feasible.

With regard to the need, Nova Scotia Power prepares a load forecast. In the past our load forecast has been tested by expert intervention at our Public Utilities Board, and in fact, some of the intervenors today questioned our load forecast. And those same people that are questioning it today questioned it before at the Trenton hearing. And at that time, it passed the scrutiny of that intervention. And, in fact, the Public Utilities Board did indeed accept our forecast and our methodologies. We submitted to the Board a report comparing our forecast accuracy with that of other jurisdictions, and our forecast proved to be more accurate than the average of the forecasts of other Canadian Utilities as well as the average of the forecasts of other American Utilities. We're quite confident that our forecast is a reasonably representative of the needs in the short term. By the "short term", I mean the planning horizon necessary to build a unit like Point Aconi.

Our criteria of 20 percent reserve requires that we add capacity in the fall of '93. On the financial side, we have tested the impact on rates of this Point Aconi unit coming on line.

And just on the financial matter, it was mentioned by one of the intervenors today that N.S.P.C. experiences losses of $35 million dollars a year. Well, of course that's completely wrong. And what's more, we forecast that our rate increases over the next ten years will certainly not exceed inflation on an average basis and will likely be less than the rate of inflation. And that's consistent with information we've provided to the Public Utilities Board at the Trenton Six hearing and again at the rate hearing last year. And it's consistent with the information we provided to them for the rate hearing that starts on Monday the 22nd of this month.

With regard to our options, we have demand side options. Those are options on the customer side of the metre, and we have supply side options which are the utilities side of the customers' meter. The demand side options that we have been interested in, and we have been for some time. (Since 1978, we've been conducting a load research experiment, that perhaps if not the best in North America, it can't be much more than second or third best.) We've been involved in many demand side experiments. Lease cost planning advocate suggestions that you don't go out and make radical decisions without testing whether or not your hypothesis are true. And we have, in fact, tested those hypothesis. We've experimented with water heater controls. We put water heater controls; that is, interrupting devises on the water heaters of 50 homes and determined what coincident reduction we could gain in the system peak by controlling those water heaters. We found that that is not economic to do.

We had a very thorough investigation of time of use rates carried out by a world expert on the subject, Dr. Ralph Turvey. And Doctor Turvey concluded that time of use rates were not appropriate as a demand management tool in Nova Scotia because the difference between our on-peak costs and our off-peak costs are too close together. It may be appropriate, though, in other jurisdictions that have very expensive on-peak capacity and energy requirements, and relatively cheap off-peak energy. We don't have that in Nova Scotia.

We experimented with plenum heaters; that is, putting a resistent heating coil in the hot air plenum of oil-fired systems in the hope of improving the efficiency of the oil heating system as well as leveling the load from an electrical supply. That, too, is not economic at this point in our system.

We have investigated heat pumps. We sponsored the installation of five or six heat pumps in various commercial establishments in the Province in order to determine the cost effectiveness of that. While heat pumps may be economic on a life cycle basis, the capital cost in a domestic application would be very large relative to other alternatives, and are judged not to be economic at this point.

We have an interruptable load on our system. A hundred and fifty megawatts of our load is not counted as capacity when we planned for a 20 percent planning reserve. Usually it's large and small industry that chooses to be interruptable in nature. An interruptable load is a well accepted demand side management tool. And in that regard, about eight percent of our load is interruptable. That's more than any other utility has in North America.

On the conservation side, Nova Scotians currently use electricity at only 55 percent of the rate of the average Canadian. Nova Scotians use approximately 9 to 10,000 kilowatt hours per year, whereas for Canada as a whole the figure is like 17,000 kilowatt hours per year.

The energy conservation -- sorry, consumption for residents in Nova Scotia per degree day (For a residential unit a degree day is a heating unit.) has declined from 1979, from some 40,600 B.T.U.'s, or British Thermal Units, in 1979 to a 1987 figure of 31,200 which is a 23 percent reduction.

On the supply side, we keep abreast of various numerous technologies. Nuclear power, of course, is something that's often suggested as a viable alternative. Well, the largest-- sorry, the smallest commercially available unit size in Canada today is 630 megawatts that has been demonstrated and that's much too big for the Nova Scotia Power system. If we were to have a 630 megawatt unit on our system, we'd have approximately one-third of our supplying one unit. And if it was forced out for any reason, we could have a real supply problem. Because of its capital intensity as well, it would be an interesting proposition if it wasn't on line all the time.

Tidal energy, while it may be economic in the long term (And we have a demonstration 20-megawatt unit which is the only tidal power unit operating in North America.) -- To be economic, it's got to be developed on a very large scale, in fact, about 1200 megawatts to 5,000 megawatts. And I assure you if 600 megawatts in the nuclear unit is too big for our system, 1200 megawatts and 5300 megawatts are much too large.

Of the conventional hydro that remains, less than one percent of the annual energy requirements of Nova Scotians can be met by the undeveloped hydro in the Province. And not all of that hydro that exists might be developed from an environmental perspective; for example, some of that remaining hydro includes the Margaree River, other includes the Gold River in Western Nova Scotia.

Renewable energy, of course, is very popular from an energy conservation and environmental perspective and we are certainly supportive of that. We have 370 megawatts of hydro which is virtually all that is developable in the Province. We have the tidal power demonstration under way, and in addition we have a wind turbine at Wreck Cove which is a small unit, only 300 kilowatts, but nonetheless we are experimenting with renewable energy.

Emerging technologies that have not yet reached the stage of commercial viability (And by "commercial", I mean that would be economic and cost competitive to Point Aconi.) include integrated gasification combined cycle which was referred to earlier today by Mr. Marcocchio concerning work being done by the Coal Association of Canada, and Nova Scotia Power is very familiar with that particular work.

We're looking at pressurized fluid beds which is the next generation of technology beyond that which we propose for Point Aconi, but that, too, is not yet commercially demonstrated.

We're looking at coal liquid fuels, carbogel being one. In fact, we've done quite a bit of work on that subject, and that was mentioned as a viable alternative for Nova Scotians. Well, again our work indicates that it isn't economically viable at this stage.

We're looking at partial gasification of fuels. And by that we mean a process by which coal gas would be creating using the gas turbine and the char that would be left from the gasification would be used in a unit like at Point Aconi C.F.B.

We looked at purchases from out of the Province. For example, Hydro-Quebec is on public record as having said they've got no more surplus capacity and energy to sell until beyond the year 2,000. And we know that New Brunswick who do have a nuclear power plant at Lepreau have opted to go to a coal-fired unit, 450 megawatts in size, for their next plant addition. That unit is scheduled to come on line in the mid-1990's. And it has been determined during a hearing something like this that it will recall flue gas desulphurization which, of course, is already incorporated in the design of a C.F.B.

That leaves us with one other subject area to cover and that's fossil fuels. Nova Scotia was dependent on foreign oil for much of its electricity in the early and mid-70's. Oil has proven to be an unfriendly fuel source from the perspective of security of supply and price stability and therefore is not appealing. Furthermore, the cost differences between coal and oil can swing very radically, and although last year some people were concerned that we were burning coal from Nova Scotia instead of buying cheap offshore oil, (It's interesting how a few months can change things.) the oil is now more expensive again. We don't have any gas, so we've got coal. Fortunately we have a lot. And the price of the coal that we pay are tied to the world market prices for coal, so we're not paying an exorbitant price for the coal. We also have from our reliability perspective a need to have some security, and that is granted by having an indigenous fuel.

The environmental issues that have to be addressed, of course, are those related to the combustion of a fossil fuel. Nova Scotia coal has sulphur, and we have been mandated by the Provincial Government to reduce our emissions to be not greater than 160,000 tonnes of SO_2 per year in 1994. The Point Aconi unit will enable us to remove 90 percent of the sulphur from stack gas emissions, and in addition will permit us to, in our generation produce oxides of nitrogen at not greater than one-third of the rate which would be produced by a conventional coal-fired unit.

Because of these benefits, because of the fact that being located at a mine mouth or practically at a mine mouth, we have determined that the least cost alternative for Nova Scotia Power, that also addresses the environmental issues with which we are really confronted, is a C.F.B. located at Point Aconi and required to be in service in '93-'94.

Now I think I've taken a few more minutes than I intended to do, and I probably eroded some of Gerry's time, but I thought it was important since some of the issues that were raised earlier in the day couldn't go unaddressed.

MR. GERALD LETHBRIDGE:

Mr. Chairman, Members of the Council, Ladies and Gentlemen, my name is Gerry Lethbridge. I'm the Vice-President of Engineering and Productions, Nova Scotia Power Corporation.

I'd like to give you a little bit of history of how we arrived at this Circulating Fluidized Bed technology, and how we arrived at the site at Point Aconi. In addition, I'll give a brief description of a basic thermal generating process, the inputs and the outputs to and from that process, and finally, a bit of a description of the Point Aconi site itself.

Now our interest in this technology goes back to actually 1979. And at that time, we were aware that the technology had the ability to burn a wide variety of fuels, and certainly we have that here in Cape Breton. And also, and perhaps more importantly, it had the ability to reduce to a considerable extent the precursors to acid rain, those being sulphur dioxide and oxides of nitrogen.

In 1982, we, in conjunction with Energy, Mines and Resources, constructed a fluidized bed test rig, and you can see it's under construction there. That unit is at Point Tupper. We carried out a program of determining the corrosion and erosion aspects of the tubes in a fluidized bed environment, and it also provided us the opportunity to get some operating experience in this environment.

Now concurrently with that, we set out a four-phase program which involved technical feasibility of circulating fluidized bed at the 150-megawatt level, financial feasibility of such a program. The third phase involved pre-engineering work which included test burns of Nova Scotia coal, Prince coal, together with local limestones up at the test unit at Chatham, New Brunswick. We carried out limestone characteristic tests. We looked at the environmental aspects in a preliminary sort of a way; and at that stage, we also recognized the approval process which is where we find ourselves today, and if we are given approval, we will then proceed with phase number four which includes the actual detailed design, construction, commissioning and operation of the Circulating Fluidized Bed unit at Point Aconi.

Now also in the third phase of the program, we did a site selection study which involved four different sites, those being at Donkin, Lingan, at Victoria Junction, and Point Aconi. We looked at a number of different aspects including proximity to limestone and coal sources, access to the site, the environmental and social impacts, and also environmental comparisons between the four sites. And when all -- all of this information was analyzed, we concluded that the Point Aconi site was optimal.

Now I'd like to move along to a description of a thermal generating station unit, and I'm going to move over to the other microphone.

This is a very basic description of the combustion and generation of electricity. It involves a furnace which is the boiler into which we inject coal. Water is pumped through a water treatment plant into the boiler. The heat in the boiler or in the furnace converts the water to steam. The steam drives a turbine which is coupled to a generator and the generator produces electricity for our customers. Now to complete the steam cycle, all of the steam has to be condensed back to water for recycling through the boiler, and we do this with a condenser which is shown here, and we need relatively large amounts of external water for that. And you can see the water coming in through the condenser and out here.

Now there are byproducts associated with the thermal generating process, and the byproducts include such things as leachates from the coal pile, waste chemicals from the water treatment plant, drains from the power house itself. We have bottom ash from the bottom of the furnace and fly ash from the flue gas. We have to concern ourselves with fish and other micro-organisms going into the condenser, and also of the warm water effects of the discharge from the condenser. We also have to concern ourselves with sulphur dioxide, oxides of nitrogen, both of which are precursors to acid rain, and of course, carbon dioxide.

Now in our more recent plants, those that have been built from -- in the 1970 era, plants such as Lingan, the Point Tupper Two plant, all of these byproducts are addressed with mitigative measures. For instance, the leachates from the coal pile and the waste chemicals from the water treatment plant are taken to a waste water treatment plant. Drains from the power house themselves, the drains are taken through an oil trap to separate oil from any water that gets trapped with oil. That -- the discharge from the oil traps also goes to the waste water treatment plant. Insofar as ash is concerned, the bottom ash and the fly ash are taken to controlled landfill sites. The fly ash wherever possible is also sold as a concrete, as a cement replacement in the manufacture of concrete.

Insofar as the C.W. intake is concerned, to minimize fish capture we use low velocity intakes, and we defuse the discharge water to minimize the effects, the warm water effects on the aquatic environment at the outlet.

The stack emissions are shown here. We use washed coal wherever possible to minimize the effects of sulfur dioxide. We use low NOX burners for nitrogen oxides. Our dust collection equipment is in the order of 99.7 per cent efficient. And our modern plants, those, as I say, like Lingan, are about 10 per cent in efficiency greater than those that were developed back in the '40's and the '50's. And that, of course, mitigates to a certain extent the effects of carbon dioxide. Now, in our state of the art plant at Point Aconi, all of these mitigative measures will be taken into consideration and in addition to that the fluidized bed, as we've indicated previously, has the ability to capture about 90 per cent of the sulfur, and we'll get about 60 per cent reduction in oxides of nitrogen.

If I can move along now to a quick description of the site.

This is the pit head of the Prince mine and the Point Aconi lighthouse is out there at the top of the slide. The extension to highway 162 comes down to our site, which is about 52 acres. The waste disposal area is here immediately to the south and adjacent to the site.

And I might say at this stage that there was some question raised today about why we are not disposing of our ash in the perhaps closed down mines. We did, in fact, look into that in conjunction with Cape Breton Development Corporation. We are aware that they have carried out detailed studies and found this not to be feasible for a number of reasons. Most of the mines here now are becoming retreat operations and as the mining operations are finished, the roof collapses and there is no space left for anything like ash. Some of the mines that have been abandoned have been flooded. All of our mines here in Cape Breton, or all of our underground mines, in fact, go out under the water. So some of them are flooded and some of them are sealed. The Number 26 mine over at Glace Bay is sealed. So there is just no opportunity to get rid of ash in the mines where the coal comes from. So this is basically the reason why we're going for a surface waste disposal area.

If I could move now to the site itself. This is featured by Unit One powerhouse which is located here and hatched in red. Unit Two and Three will be immediately south of the Unit One powerhouse. The C.W. intake system has its intake cap out here about 1.0 to 1.3 kilometers from the shore. There will be an under bed -- under seabed tunnel coming into the pumphouse, through the condenser and then discharging out here through the C.W. discharge. The coal, approximately 160,000 tonnes, will be stored in this area. A 50,000 tonne limestone storage pile is here. All of the drains and the leachates from these two piles will be directed by gravity towards a sedimentation pond which is shown here. Some of the water from the sedimentation ponds will go to a waste water treatment plant and will, together with drains and the chemical wastes from the plant, be treated in the waste water treatment plant before discharge to the environment. The remaining water from the sedimentation ponds will be brought over here to the ash silos for conditioning, for the first stage conditioning of the ash.

These two circles -- these two yellow circles, depict the bottom ash and the fly ash silos. This is the stack shown here. The substation is shown immediately to the west of the plant.

Now insofar as the operation is concerned, coal and limestone are brought in from the extension of highway 162. There are two ground hoppers located here. Both the coal and the limestone will be discharged to the ground hoppers or directed to the appropriate piles. Coal will be brought in through a conveyor. The coal will be directed immediately to the powerhouse. The limestone will go out here to a limestone preparation plant where it will be prepared prior to being delivered to the powerhouse pneumatically.

So I think that's basically the description of the plant and the site, and I'd just like to conclude by saying that we are using a state of the art technology here and we believe that we are certainly using best available technology to mitigate all of the environmental impact. Thank you.

MR. JAMES HARRISON:

Thank you. I'd like to make sort of a change in the order of procedure. When we discussed this over dinner tonight, the panel felt that it makes more sense to have questions right after the presentation. Mr. Beaton, would you be prepared to sit a bit longer while questions -- Good. So we thought that it makes more sense to have questions right after the presentation, and then we'll go on to Mr. Beaton's presentation if there's any questions on his comment.

So are there questions from the floor that people would like to ask regarding this presentation? That was the first question. Second question, who's going to ask the questions? Anybody? Any member of the panel -- oh, all right. Would you please come to the microphone and identify yourself?

MR. VINCENT DAY:

My name's Vincent Day from Bras d'Or and I'd like to ask Mr. Lethbridge a couple of questions.

How is the limestone going to be conveyed to the plant, and what about the water requirements -- fresh water requirements to the plant itself, how is that going to be supplied?

MR. GERALD LETHBRIDGE:

Okay. In answer to your first question, "How will the limestone be conveyed to the plant?, it will be conveyed by truck from some -- from one of the limestone sources that is available in Cape Breton. We're not absolutely sure where it's coming from at this stage. That is something yet to be determined. I'm sure that you're concerned about the truck traffic. However, in this particular case, we have about 450,000 tonnes of coal that would otherwise be conveyed from the Prince Mine over to Victoria Junction which will be taken away from the road. There will be less limestone brought to this site. So there will be a net benefit from the standpoint of traffic.

Now, insofar as the fresh water requirement, we studied, I guess, about six or seven different sources for fresh water. Four of them were surface sources and all the surface sources were found to be inadequate for our requirement. And we ended up with a -- what's called the Lower Morien aquifer. We did a lot of hydrogeological studies. We did a 16-day pump test which indicated, just briefly, that the recharge rate, or the rate that the water would replenish in the aquifer is greater than our total requirement for a three-unit site.

Now we are developing the project over stages. We're only building one plant right now at this particular stage. So we will have the opportunity to monitor the effects of the water that we take from that aquifer at very, very much less than what the full demand will be. And as I say, even the full demand is less than what the recharge rate is. In addition to that, and we did not take in to consideration the fact, and I mentioned in my presentation that we will be reusing some of the water. Any water that we reuse will then, of course, be subtracted from what the requirement for new water will be. So we believe from the studies we have carried out, we're quite confident that we won't have any problems. We will be monitoring. We do have monitoring wells in Millville, Boularderie right now. We will be monitoring on a continuous basis in conjunction with the local residents and so on for water supply.

VINCENT DAY:

Thank you.

MR. JAMES HARRISON:

Thank you, Mr. Day. You broke the ice. Are there any other questions from the audience?

MR. OSMUNDO BETANCOURT:

I would like to file at this point a report that was produced by the George Marshall Institute, "Scientific Perspectives on the Greenhouse Problem".

MR. JAMES HARRISON:

This is a report that the Nova Scotia Power Corporation which Mr. Betancourt wishes to file with the panel. It's entitled, "Scientific Perspectives on the Greenhouse Problem", and it's compiled by the George C. Marshall Institute of Washington, D. C. We'll have this available with our proceedings and we'll so mark it. Now, any other questions from the audience? Mike McGill had some that he wanted to ask. Go ahead.

MR. MICHAEL McGILL:

Mr. Lethbridge, I've got a couple of them and perhaps if I could get you to give us your slides we could be a little more site specific. I got a couple on your water supply, some on the landfill, and your waste water out of your plant. And it would be helpful to me if we had the slides up on the screen just so we can point at them maybe?

In your report that you submitted, it showed the area for your well field on the map but it's not shown on that particular map. Can you point it out for us?

MR. GERALD LETHBRIDGE:

Yes, it's -- that's correct. It's not on this bigger one and I'm afraid that I don't have a slide that shows exactly where the wells are. But the wells are located down here, about five kilometers from the site. So it's a bit further on down than this slide shows.

MR. MICHAEL McGILL:

I'm not a native of here, but is your well field reasonably close to here, to where we are tonight?

MR. GERALD LETHBRIDGE:

You're asking an embarrassing question because my geography of this part of Cape Breton is maybe not as good as it should be. We presently are on this road, and I rather suspect that we're probably down maybe another two or three kilometers from here. So I guess the location -- the most optimum location would be almost directly opposite that. Mr. Betancourt is going to come along and help me out here.

MR. OSMUNDO BETANCOURT:

The location of the well field is approximately in this area here.

MR. MICHAEL McGILL:

Okay. Aren't we on highway 162 here? As I say, I'm not a native, so I don't know.

MR. TED MARSH:

Less than one mile away.

MR. MICHAEL McGILL:

Okay, thank you. In the hydrogeological studies that you did most of -- I understood most of the local residents well water is in the upper aquifer. Is that right?

MR. OSMUNDO BETANCOURT:

Yes, that's correct.

MR. MICHAEL McGILL:

Is there any in the lower?

MR. GERALD LETHBRIDGE:

The report indicates that there might be a few. I'm not really too sure how many that refers to. However, the pump test that was conducted, a 16-day pump test, indicated that if we were pumping at the rate of 2300 litres per day from where the wells would be located that the drawdown cone where these particular wells would be located, (I think perhaps on this road over here and there might be a couple more over on this road.) it would be something like two meters if, indeed, we were drawing at 2200 litres per minute for 30 years.

So as I indicated before we will be watching that -- we will be monitoring that. We're certainly not going to be drawing 2200 litres for Point Aconi, number one. The expectation is about 920 litres, I think. And we will certainly watch the performance of the wells. There are a number of observation wells at various locations around the actual location where the production wells will be located.

MR. MICHAEL McGILL:

I read in your report the -- you had done some initial testing and it spoke of the 16-hour pump test. Are you still doing any pump tests, or are you done with your test pumping per se? It seemed to indicate that there was more work still underway.

MR. GERALD LETHBRIDGE:

I believe that the actual test work is finished. There is still some further information that we're expecting from the consultant in his final report. The wells -- the determination of the water was done in a two-phase operation. The first phase, it was a relatively -- it was only a 72-hour test, I think. We did get the report and that gave us the confidence, I guess, to proceed with a more detailed pumping test which was the 16-day test, as I mentioned. And the final report for that is not in. We do have preliminary information from the consultant, the hydrogeologist, indicating basically the information we provided here.

MR. MICHAEL McGILL:

Now there was some questions raised this afternoon about the net effect to the local residents and their well water, and another one tonight. And I believe you addressed the mention of if your well has some effect on the local areas, there was a discussion of a local committee to monitor your well, but where do you--because if I understand your report right, the fresh water supply is as essential to your project as it is to the local residents. Where do you stand on if something happens to your fresh water supply in respect to the local people and their well water and you, the Power Corporation, in the way of back-up to your plant?

MR. GERALD LETHBRIDGE:

Yeh. There's a couple of different options that are available to us, and I believe that I mentioned this in passing today. If indeed we find that we have difficulty in supplying all of our requirements from the Lower Morien aquifer at the production wells here, we do have an option over here at Point Aconi Brook, of pumping water from Point Aconi Brook over here to the reservoir which is presently operated by Cape Breton Development

Corporation. So that we would replenish this water that's behind the dam with some of the water from Point Aconi Brook. That would only be to supplement the requirements that perhaps could not be met by the Lower Morien aquifer.

MR. MICHAEL McGILL:

That would be back-up for your plant. What about the local residents and their water supply if something goes afoul of that? Where do they -- what resource -- what back-up do they have?

MR. GERALD LETHBRIDGE:

I believe that the hydrogeologist had indicated that in -- under the worst circumstance of very dry years, perhaps consecutive very dry years, that it may be necessary to extend their wells if, in fact, you get consecutive dry years. And certainly, without question, if that's the case we would do that. That's an almost foregone conclusion. So if they have problems with lack of water, certainly we have a responsibility to ensure that their water sources are replenished.

MR. MICHAEL McGILL:

One more item on your water supply to the plant is that, is your 700 or 900 litres a minute or whatever -- is that an instantaneous demand, or is it -- does it fluctuate? Are you looking for that 24 hours a day? I didn't see anything for provisions for storage, for back-up to cover instantaneous demand or what have you, or if you have a breakdown in your well field.

MR. GERALD LETHBRIDGE:

Yeh, that would be -- this is the 2200 litres that we're talking about?

MR. MICHEAL McGILL:

In either case. Seven hundred or 2200, you're pumping from a well field, and I didn't see any mention of any form of storage to handle instantaneous demand.

MR. GERALD LETHBRIDGE:

I don't think it shows -- well, it may be shown right here. There is a small water storage that's treated with fire protection in this location here. Other than that, we have water storage tanks, of course, in the plant itself at various stages of the process. They are not exceptionally large water tanks but certainly enough to look after surges that we would expect. But normally the water requirement is a relatively constant requirement. There's about a three percent make up in a plant like this. There would be some variability because some of that water, as has been indicated, is required for the ash disposal, and if ashing is not in progress for any reason, then we wouldn't need the water.

The other thing that would cause some variability, I suppose, would be the extent of water that's available from the run-off pond for conditioning here, and also the water at the sedimentation pond, which would be created at the ash disposal area that we will be reusing that.

Some of my colleagues over there are --

MR. OSMUNDO BETANCOURT:

Mr. McGill, perhaps if I could just add a word or two. As Mr. Lethbridge has indicated, the results that we have at this point in the populated areas, both to the west and to the east, southwest and southeast of the production wells that we have used for testing, the drawdown calculated over a period of consumption of 30 years is only going to be between about a meter and two and a half meters, which should have practically no effect on these wells which are 160, 200, 250, 300 feet down, but, and this is on the second part of your question that you had, the Corporation -- basically the risk management department of the Corporation looks at any complaints or claims that somebody who may have been or may feel that something has -- some loss has been suffered as the result of Corporation activities. They would look at those things and first of all, they would try to determine if, in fact, there has been a loss. If there has been a loss, they would investigate the cause of the loss. And if we, the Corporation, are the cause of the loss, then they proceed to deal with whatever obligations that we have to that particular individual. So I think that as an example what Mr. Lethbridge indicated, he said if a particular well happens to need perhaps to be a little deeper, that would be the kind of undertaking, that after it has been established that that has occurred as a result of Corporation activity, that would be undertaken.

MR. MICHAEL McGILL:

Do you have any -- I think the water -- you made, in the report it -- You report the drinking water guidelines for your fresh water. Do you have any provisions in your plant for any formal water treatment? It showed the -- showed your tests, your water sample and an analysis and how they relate to the drinking water guidelines. Thirty-five years is a long time. I've experienced some ground water contamination in Truro, and I wonder if you have any provision or how some form of ground water contamination might affect your plant operation, if there's any provision for any form of treatment.

MR. GERALD LETHBRIDGE:

Well, certainly we have water treatment. We have very sophisticated water treatment in the plant. It includes a clarification, basically clarification systems. We use sand filters, activated carbon filters, clarifiers, and then we use demineralizers. The reason for that, of course, is because the boiler tubes, which are under considerable pressure and temperature, requires extremely clean water with -- as I say, it has to be demineralized and clarified and so on. But I'm not too sure if that is your question.

MR. MICHAEL McGILL:

That's essentially it. I think there's somebody from the floor who want's to ask something, and I'll sit back for a minute.

MR. JAMES HARRISON:

I wanted to interrupt and there is a question from the floor and I can't make who it is against the back light. But maybe we can have the lights on again, please.

MR. TED MARSH:

My name is Ted Marsh, County Councillor, Municipality of Cape Breton. I spoke earlier this afternoon on my support of the power project. But during this discussion on water, a number of the residents, I feel, are getting rather upset with the way the proceedings are going concerning the conversations on water.

You mentioned, Mr. Lethbridge, that in the event of several dry summers where the residents might be suffering water losses that you, or Nova Scotia Power is willing to compensate with deeper wells, or whatnot. But in the event that there is massive numbers of people suffering problems with water, I'm wondering, sir, if the Nova Scotia Power Corporation is willing to extend municipal water lines from the neighbouring municipality of Bras d'Or down along the Point Aconi Road to compensate for this loss of water?

MR. JAMES HARRISON:

I'd just like to interrupt here because I have a question very similar to that, and maybe you could answer at the same time. It relates very closely to this. In case of a major, what I would say is a catastrophe for a household to run out of water, what does the Power -- what would the Power Corporation have in place as a contingency plan, and what would the timing be? Because houses can't go without water for days and days and days, especially if it's a young family and so forth. This is a thought that occurred to me, if I were a resident. I'm sure that's one of the questions you're asking.

MR. TED MARSH:

Exactly, yes.

MR. GERALD LETHBRIDGE:

Well, if I could speak to Mr. Marsh's question first. I mentioned earlier that we looked at four surface water systems, and one of them was the possibility of the Pottle Lake water supply system. And there are a number of reasons, economic, the -- our understanding of the state of that particular system and so on, which just makes it impractical for us to look at extending that particular system. The closest point from our plant is over at Alder Point on the other side, so there's about four or five kilometers, I think, that the line would have to be extended.

And there is question about the amount of water that would be available to meet the needs of the other serviced households, plus our own needs. And I think there are other reasons as well that are enumerated in the report. Basically it was given consideration, but for a number of practical reasons and certainly economic reasons, we didn't pursue that option further.

To address the question of the Chairman, what we're looking at is a situation that we have a water supply which-- and on a 16-day pump test will provide water, will provide three times as much water as we need for the first unit, plus the other alternatives that we have. The 2300 litres is the total requirement we would have for three units.

We have information, again from our hydrogeologists that suggest in the driest years, that the recharge rates or replenishment rates (And I mentioned this a little bit further on.) for that particular aquifer under the worst circumstances, dry years, 3500 litres per minute. So in other words, the recharge rate in that aquifer is one and a half times the total amount of water that we'll be taking when there's three units up there. Now we're only putting one unit there. So that's another factor of three. We just can't see any possibility at all of affecting the very few wells that are drawing water from the Lower Morien aquifer.

MR. OSMUNDO BETANCOURT:

I had a -- Mr. Marsh, I had a question. This afternoon somebody approached me after the afternoon meeting was concluded from the Millville area. And basically the question raised was the same as you are raising now. And what I am going to do with that is I'll be contacting -- Obviously this is a particular concern with you, and I don't blame you for that. I think it should be. I would probably be asking the same questions. And I think what we're going to do is we're going to come back and talk to the gentleman (I have the name here.) and talk to -- through him or maybe even through you. You know that we have been able to arrange meetings with people in the community through you before. I think that we need to do that. And if it requires that we get our heads together to maybe do another test that would be more-- that you would be, if you want, more satisfied that things are going, and they are answering your questions, I think that we will do it.

We don't want you to leave here tonight with the feeling that we are trying to skirt the issue. We will just come back and sit down with you and say, "Look, you know, where are the wells that are -- have been in trouble in the past, and let's see why they were in trouble in the past?". We'll certainly make some sense out of your comments and so on, and do something. And we'll be back as many times as is necessary to satisfy you. That's all there is to that.

MR. JAMES HARRISON:

Yes, another question. Mr. Beaton, you had a question.

MR. KEVIN BEATON:

Thank you, Mr. Harrison. I have a couple. I had originally planned to ask a couple of these.

MR. JAMES HARRISON:

Would you please just identify yourself clearly for the purposes of the tape?

MR. KEVIN BEATON:

Oh, I'm sorry. My name is Kevin Beaton. I am Vice-President of the Point Aconi Road Community Development Association. I'll be presenting a report of the opinion of the Point Aconi Road Community Development Association a little later. But I have a couple of questions, and again, one or more of them directed about the water.

Ms. Nicholson and Gentlemen, you don't miss the water until the well goes dry. We've been hassled with water problems with the strip mines for a damn long time. We don't want hassles now. We want guarantees that we will have water. Now you talk about coming back and meeting with us again. That's great, but what about monitoring our own wells to see what they are now, so we don't have an argument later. The problems we had in the past we had to prove that the blasting or the -- whatever was going on with the strip mines, we had -- the onus was on us to prove that that caused our water loss. We don't want to have to prove that kind of stuff. Come and monitor our wells now and get a reading now and see what the situation is.

I question, too, you know, is 16 days testing sufficient? Perhaps it is. That's not my field of expertise, but 16 days and perhaps -- perhaps some more testing should be done at various times and various periods of the year.

A question that I have that's not related to water, but it does relate to -- not to the fresh water, but it does relate to the intake of the cold water and that has to do with the location of the intake and what access fishermen will have, or what proximity can fishermen place traps around that? Perhaps someone can address that or how close are they going to be able to go or is this going to be bouyed off, so they'll know where that location is? Perhaps someone can address that.

And one other question. (Perhaps, Mr. Harrison, if it's all right, I'll throw out all the questions now and then we can receive the answers.) My next question is to do with any blasting that may occur at the site. That has been a problem for residents in the area with the strip mining. Of course, there's a lot of blasting involved there, but you know the effects of that. Again, it comes back to what are you going to do about it? Perhaps some type of a survey of the condition of people's basements now, their walls or windows or whatever, because these things do have an effect. Now your report indicates when the blastings and that will take place, but it doesn't indicate what will be done in the event that there is any kind of a claim. So that's -- that's all of my questions at this point, Mr. Harrison.

MR. JAMES HARRISON:

Well, as I see it, you have three questions. I guess the first one is in dealing with the water supply, is a 16-day test sufficient. This is a question, I guess, the hydrologist would answer, but does the Power Corporation have a response to that?

MR. OSMUNDO BETANCOURT:

Yes. I think I just want to -- I just want to repeat that we will come back here, and we want to know a little bit more detail. We realize that you have had, I guess, in the past with another industry in the area, you have had some difficulties, and we certainly -- the last thing that we want to do is to get involved in the same sort of thing as the kind of problems that you had in the past, so just to explain that this 16-day test is not just a quick thing. Basically, it is a long, long test which specialists tell us that at the end of that test, they basically knew that there wasn't going to be any more changes to the water table where they were monitoring. They tell us that at that point some steady state had been reached where the water level wasn't going to go lower. And as I indicated before, in the populated areas, that drawdown was going to be between 1.0 and 2.5 metres or something to that effect. But we don't want to leave it there. We'll come back here. We want to identify wells that have been in trouble in the past, and we will do whatever number of monitoring sessions are required in various seasons in the year to demonstrate the point that we are trying to make. We don't want to cause you any problems.

The intake will be marked according to the Transport Canada Regulations and Requirements. So that will take care of that one. And I forget whether you had another question.

MR. JAMES HARRISON:

I guess that the question on the intake was that what access will be -- will there be for fishermen with lobster traps, etcetera? I think that was the basis of the question.

MR. OSMUNDO BETANCOURT:

Yes. Well, I mean the place will be marked. The velocity at about three metres from the bottom will be higher than -- you will have some velocity because water is being drawn, but outside of that you can place the traps anywhere you want. Just immediate -- in the immediate vicinity, just right next to it, you would notice that there is some current, but that's about it.

MR. JAMES HARRISON:

And I guess the actual intake line is buried out to the point of where the intake structure is?

MR. OSMUNDO BETANCOURT:

Correct.

MR. JAMES HARRISON:

And the intake structure is what size?

MR. OSMUNDO BETANCOURT:

The intake is a round structure, okay, and it draws water from 360 degrees. For the first unit, 270 degrees are going to be blocked, and you're going to be drawing only from -- so from that area, when -- if you will, if we put the second unit, another portion will be uncovered and so on, so forth until we have the three units, and then it will be drawing from all around. But what I'm saying is that basically the part where there is movement of water is approximately between two and three metres from the bottom. So in that area there is going to be a current, but it's just in the immediate vicinity that it would be noticeable.

MR. JAMES HARRISON:

Actually the cross-sectional area, I guess, of the intake is not fifty square feet. It's --

MR. OSMUNDO BETANCOURT:

Oh, it's a large one.

MR. JAMES HARRISON:

I guess the third question was about blasting of the site. What about any adverse effects and whether there should be a survey done beforehand on walls and foundations to establish their condition before any blasting is done? So perhaps you could respond to that.

MR. GERALD LETHBRIDGE:

Yeh, I think the request is a very reasonable request and I think that Mr. Betancourt when he comes down here to talk to you people, we can set something up along those lines. Absolutely for our own protection as well as your protection, I think it's a mutually good thing to do, and see no problem doing that.

I would like just to add a supplemental, I guess, to your first question, Mr. Beaton. You made reference to your concern about whether a 16-day test is adequate. And I'll read from the preliminary -- I guess final report, second stage report from our consultants, the hydrogeologists. And I'll just read. It's only a couple of lines here.

> Predictions of drawdown including re-charge effects after 30 years of pumping at 2300 litres per minute were developed by extrapolation of the drawdown curves generated from the 16 day pumping test.

So what they're doing, in fact -- And I'm not a hydrogeologist and I can assure you I don't know how they did it, but we have to take their information as being experts and they've used the 16-day pumping test to extrapolate what the conditions would be for 30 years pumping at that rate.

MR. JAMES HARRISON:

Are there any further questions? Mike, you still have some? You're loaded with questions. Go ahead.

MR. MICHAEL McGILL:

If anybody from the floor gets the urge to ask one, just indicate, and I'll shut up for a while and give you the floor. I have some questions, but I can wait.

Did they answer your question, Jim? I wasn't sure I heard it, but contingency -- if there was a contingency plan. Did anybody address that? Jim asked the question about a contingency plan, if you had a contingency plan for if the well runs dry?

MR. GERALD LETHBRIDGE:

I guess what we indicated in response to that question was that the indications are from this particular aquifer that we are--

we will be drawing much, much less water than is available in the aquifer. And because -- particularly because we're doing this over a staged development, where the 700 to 900 litres in comparison with the 3500 litres on a dry year of re-charge, that there should be no problem with that whatsoever.

The only other contingency as I had indicated was that if we do have problems, we would be expecting to get water from the other source, the Point Aconi Brook.

MR. JAMES HARRISON:

I guess the reason I asked the question, I put myself in the position of "what if?", thinking of what's the law -- Murphy's Law, that if something is going to go wrong, it sure will, and whatnot. No, just putting myself in the place of a resident and thinking that there might be an interruption of water supply, thinking that it might be over several days, it seems reasonable to ask what -- is there a plan that would -- that the Nova Scotia Power Corporation would be prepared to take to supply residents with water until the fault or whatever it is, is fixed.

MR. GERALD LETHBRIDGE:

If, indeed, that happened, (And again I must emphasize that from all of the technical information that's available, the chances of that are very, very slight indeed.) that, yes, we certainly would have a responsibility, and if we had to truck water to fill the wells, which has been done, I think, at different places in the past where there is water -- you know, well water shortages, we would be prepared to do that.

MR. MICHAEL McGILL:

Can we go back to your map and the landfill area? Part of the proposed landfill is a former strip mine and part is, as it exists today, natural?

MR. GERALD LETHBRIDGE:

That's correct. You can see the strip mine outline is shown roughly in this area.

MR. MICHAEL McGILL:

So your first ash will go into the old strip mine part in some place.

MR. GERALD LETHBRIDGE:

No. Our understanding is -- of now is that the first cell, as we call it, or the first area where ash will be disposed of will be basically in this area. And I think, as I mentioned this afternoon, that particular area will be lined. We will have drains underneath of the area where ash is going to be disposed. There will be drainage ditches around that cell. There will be a sedimentation pond in the gradient where the ditches drain towards. And at that sedimentation pond, we will be monitoring for a couple of years to see what the conditions of the leachate are. As I indicated, we believe that there will be no problem with toxic or heavy metals or anything like that, the mobilization of those, because of the chemistry of this material.

I should mention that the Environmental Protection Agency and/or other agencies in the United States have just recently indicated or made a decision that ash similar to this is considered a non-hazardous waste material, so they're not considering that it's any great problem at all, and that gives us some confidence as well.

MR. MICHAEL McGILL:

What standard are you evaluating your leachate against to decide whether it's --

MR. GERALD LETHBRIDGE:

I think I'll ask my chemical colleague over there to help me out in that one.

MR. OSMUNDO BETANCOURT:

I think that perhaps what I could do is to read for you what Gerry just mentioned a minute ago. The Environmental Protection Agency of the United States, or I should say the -- the Congress of the United States asked about four or five years ago to have a report submitted to them because they were considering regulating the solid waste from fossil fuel generating stations; in other words, ash. And they returned their report to Congress in 1988, I believe, and they concluded the following:

> The Environmental Protection Agency has concluded that coal combustion waste streams generally do not exhibit hazardous characteristics, characteristics under current regulations. The Environmental Protection Agency does not intend to regulate under sub-title (C) fly ash, bottom ash, boiler slag, and flue gas desulphurization waste.

So basically it is not -- As opposed to some suggestions that were made here this morning, these wastes are not considered hazardous.

What we did with the particular ash that we have here from C.F.B., is that we basically took the interpretation of these-- of the United States regulations, which are now being used in Ontario, and we tested our ash against the criteria that they have under this Ontario Regulation, Regulation 309. And our ash, of course, came out as a non-hazardous ash under that particular regulation.

Wasn't there a second question? Did you have a second question?

MR. MICHAEL McGILL:

Well, I've got two or three parts to it. I guess you're installing the liner to protect against ground water transmission, if you like, of any potential leachate. That's the purpose of gathering it up and putting it into the settling pond. So you're presumably going to monitor it to determine what's in the leachate. It may be pure water. It may have some contaminants in it. I guess the question was what standard are you going to evaluate it to before you -- assumably, if you're gathering leachate, the pond will fill at some point and you'll have to dispense with it somewhere, and where does it go and what is the standard that you're going to -- that you're going by before you release it out back to nature again?

MR. OSMUNDO BETANCOURT:

We are not going to -- We are not going to dispose of any effluent from the ash site because what we're going to collect in the pond there is going to be re-used for further conditioning of the ash.

If you would recall in the report, we indicate that ash will be conditioned in two phases. Water will be added at the station, then transported, and the remaining water necessary to reach this state is done in the second phase. And that water that we're going to be -- Any rain water around those cells is going to be collected in ponds and used at the site. So there would be no disposal of liquid effluents from the site, from the ash site.

MR. MICHAEL McGILL:

Okay. So all of your surface run off as well as any leachates you gather goes into the pond and you'll re-use. Is that --

MR. OSMUNDO BETANCOURT:

Yes, we are going to re-use. That's part of our water re-use philosophy in this project.

MR. MICHAEL McGILL:

Assuming your -- after you do your testing on your pond, it assumably evaluates the need for a liner or not. What are the standards for a liner? What -- Is it dependent on the -- what you generate out of -- in the way of a leachate on whether you continue to use liners or whether you --

MR. OSMUNDO BETANCOURT:

Basically what you're trying to do is you're going to try -- you try to separate a waste that you presume would produce a leachate. You're going to separate that from the water table. And the requirement that there is, is to provide a material that has a certain permeability, very low permeability. In this particular case, 10_{-6} centimeters per second. And you provide a metre of that material or the equivalent to separate that particular material from the ground water.

What Mr. Lethbridge was trying to say was that in the first cell, we are going to place that material -- probably some impermeable soil from the area, and we will have that, at the same time spend -- the number of years that they will take to use up the area of that first cell to spend basically studying the behaviour of our ash, in other words, of these cementatious material, and determine whether we can place on site this material without a liner because the material proves to have a permeability that is acceptable under the one metre, 10_{-6} centimetre per second. So we are going with extra precaution for that first cell, and over a number of years we'll be trying to demonstrate that there is a need or there isn't, to continue to build that liner under the ash.

MR. MICHAEL McGILL:

All right. Assuming that down the road if everything works the way you assume it, or hope it will work, you'll end up with no liner in an impermeable material in --

MR. OSMUNDO BETANCOURT:

Basically, if we don't need to put a liner down, you will wind up forming a block -- a block of concrete placed on top of the soil. That's what it would amount to.

MR. MICHAEL McGILL:

And if it turns out that your material isn't necessarily impermeable by your conditioning, you'll continue to use the liners --

MR. OSMUNDO BETANCOURT:

We would continue to provide the equivalent of one metre, 10_{-6} centimeters per second permeability liner.

MR. MICHAEL McGILL:

And is that the native material that exists there that -- in the cell that you're starting in?

MR. OSMUNDO BETANCOURT:

There are various -- You can use artificial material -- plastic material, artificial material, or you can use natural material, compacted natural material. So the requirement is that the equivalency to one meter, 10_{-6} centimetre per second.

MR. MICHAEL McGILL:

Well, if you're starting in -- in the area that was indicated as I understand it, it's as it exists today with a tree cover or something there. It's in its nature state. Is the material there? Assumably you'll have to excavate some of it to make a cell. Is that -- Is that material that will provide a liner, or are you dealing in manufactured liners?

MR. OSMUNDO BETANCOURT:

We will not excavate. We will not excavate. We will remove trees, but we will not excavate. We have a similar ash site at Tupper. And it is not a good idea to go and excavate and remove that natural soil that is there and so on, so we will be placing this material after we remove trees from there, but we will not be excavating.

MR. MICHAEL McGILL:

So is your liner -- Do you know at this point, is your liner plastic or are you going to use the native material?

MR. OSMUNDO BETANCOURT:

We haven't made that choice, but either of the two will have to meet the requirement that I had mentioned before. In the particular case of, for instance, Tupper, the material existed. The material that was -- the soil that was there met those requirements. In this site, the material doesn't. The material has a permeability higher than it is required, so we will have to place something, a compacted soil which is -- with a very low permeability or the plastic liner.

MR. MICHAEL McGILL:

I've got just one more point and then I'll be quiet for a minute. The material that you're going to place there, assuming you get it to the state that you have in your block there; that is, it will be there on top of the ground, do you do anything to disguise it, or it just sits there?

MR. OSMUNDO BETANCOURT:

Yes, yes. Yes. We operate -- What we do is we operate rather as small cells. I think that the first one we will probably be trying to -- With the production of the first unit, we will try to be operating a cell that would give us about two years of operation. So after two years what we do is we cover it with soil and vegetate it. So after we leave, you should see only grass. And then we go on to the next cell, and so on.

MR. MICHAEL McGILL:

After two years, how big a lump -- how many -- what's the surface area of your cell, if you like, that you're going to reclaim and reforest or whatever you do to it, cover up?

MR. OSMUNDO BETANCOURT:

That could be done. I don't know that at this point this evening I can do that calculation, but I -- Anybody can help me from those people who have -- Nobody is volunteering to --

MR. MICHAEL McGILL:

Take a minute if you want. We'll go on to something else, and if you come up -- it's fine. I just --

MR. OSMUNDO BETANCOURT:

I have been given a few minutes. Maybe somebody want to volunteer to do that for me?

MR. HARRISON:

Perhaps we can get back to that again when they've had a moment to consider it. For those of you that aren't familiar with the technical jargon that goes on, the permeability rate is the rate at which a material will percolate or flow the soil. As Mr. Betancourt mentioned, 1 x 10_{-6} centimetre per second rate is one that's accepted as a good permeability figure.

Mr. Beaton has been very patient with us and I'm going to ask, are you prepared to come and give your presentation now, Mr. Beaton, and then some of the things that come up in your presentation and some of the questions may be ones that are new. And I'm sorry if the preceding discussion has stolen some of your thunder. Would you please come up to this microphone?

It's been our procedure for the formal presentations to swear people in, so I'd ask you to place your hand on the Bible. Do you swear that the testimony you are about to give before this panel is the truth, so help you God? If so, say "I do."

MR. KEVIN BEATON:

I do.

MR. JAMES HARRISON:

Do you have a written presentation?

MR. KEVIN BEATON:

Yes, I will give it to you later.

Mr. Chairman, Members of the Environmental Control Council, representatives from Nova Scotia Power Corporation, Ladies and

Gentleman, my name is Kevin Beaton. I am the Vice-President of the Point Aconi Road Community Development Association, and I will be presenting a (Pardon the pun.) brief brief on the position of the Point Aconi Road Community Development Association with regards to the proposed generating station. The intention of this brief is simply to make the Nova Scotia Environmental Control Council aware of the position of the Point Aconi Road Community Development Association with regard to that station.

A bit of introduction, first of all, about the Point Aconi Road Community Development Association. Currently it consists of 33 member families from along the Point Aconi Road and its side roads. For the purpose of this report, the group shall be referred to simply as the Association, because we have a very long name. The Association has been in existence for in excess of 15 years. The Association strives to serve the social and recreational needs of the community. In addition, the Association has, through the years, become involved with many aspects of community life. Since our residents are our greatest resource, we make every effort to address the issues that are of concern to them.

We are hardly qualified to argue the rationale of the Nova Scotia Power Commission for such a project. Nova Scotia Power Commission has indicated that there will be a need for a new generating capacity by the years 1993/1994 to prevent a shortfall in electricity requirements. They've also ascertained that at this time the best means of providing the required energy is a coal fired generating station using Circulating Fluidized Bed construction technology, and the best location is Point Aconi.

The subsequent announcement of this project has evoked a cautious optimism of the Association. Given that the rationale is sound, we are reminded that our community has been, and continues to be, raped by strip mining operations that have produced much hardship for some of our residents. Any major development raises a number of issues, and this project is no exception. A number of issues have been raised locally, provincially, and nationally. The Association's concern is how this project will affect us locally.

From the onset, the local residents have had an opportunity for input, unlike previous large scale operations, to identify their concerns. These have been noted and addressed in the Environmental Assessment report. The Association has been kept informed of the progress of the project, and to us this is very important. We have been provided with a copy of the Environmental Assessment report and are able to see from that just how our concerns have and will be met.

My thunder has been stolen for this next part but it bears repeating. Perhaps the first major concern, since it can affect all residents, is how our domestic water will be affected. The report seems to favour using the lower Morien well field and has ascertained this will have a minimal effect on domestic water. Domestic water, for the most part, is derived from the upper Morien well field. Although wells drawn from the lower Morien well field will be two to three times the depth of domestic wells, the proposed location of the wells is close enough to our communities for us to be very concerned. Test wells operating as outlined in the report did not adversely affect the residents, to our knowledge. However, because of the past history of water problems acclaimed to the strip mining operations, residents would prefer to have a connection with Pottle Lake, one whereby residents could have access.

Given that this is not a viable option as outlined in the report, we implore the Environmental Control Council to make certain that the domestic water supply is not adversely affected in quantity or quality.

The second major concern of the Association is the effect the proposed plant has on marine life, in particular the lobster fishery. We don't propose to speak for all the local lobster fisherman; however, those fisherman who are members of our organization seem relatively satisfied with the proposals as they currently understand them. The design features of the cooling water intake appear to be such that every precaution is being taken to minimize the effect on aquatic life. The type and timing of offshore construction appear to be acceptable to the fisherman.

Of concern to the Association is the use of the beach area in the vicinity of the proposed site. The area, known locally as Battleman's Beach, has been used by local and non-local as a swimming and picnic area for many years. We would like to be able to continue using this area. Assuming the present access route is cut off, perhaps a new access road could be provided. Indeed some development in the area as an improved picnic site would not be unreasonable. We have enjoyed this area and do not want to lose it entirely.

Also of significance to the Association is that the Mill Pond Road remain accessible to the Point Aconi Road and not be cut off by the extension of highway 162. If this remains so, and if the extension of 162 includes an exit onto the Mill Pond Road, then we are pleased.

Having gone through the devastating effects of strip mining, the Association feels that it is very important that a liaison person or group be established between the Association, Nova Scotia Power Corporation, and the general contractor. All parties could then be kept informed. The Nova Scotia Power Corporation and the contractor would be aware of the community concerns and the Association would be kept informed of the progress of the project. Situations developed in previous operations that took undue amounts of time to resolve. We would like to avoid that during the construction life of this project and ask that this intercommunication avenue be opened up.

In the short term, the report points out that there are many potential benefits for our community, and those communities that surround us. The employment possibilities are encouraging. With the potential for 421 jobs at peak construction, some of the tradesmen from within our communities will benefit directly. Many forms of spinoff employment will be secured and new types of development as well. The Association is encouraged by these employment opportunities.

In the long term, our community members may again benefit in securing jobs where qualified within the operation of the plant. The establishment of the plant will secure the operation of the Prince Mine for an estimated 30 years. Many of our residents are employed there. This amount of time represents an entire career for an employee. A new long term market for limestone would be created that would not otherwise exist, and this is pointed out in the Environmental Assessment report; again, more employment for our residents and those of our neighbouring communities. The Association is pleased with these possibilities as well.

The Association is far from qualified to engage in scientific discussions of the environmental issues facing our nation, air pollution, water pollution, waste disposal, noise, dust, traffic. We must remain lucid, express our concerns, and have faith that all environmental guidelines for this project will be met.

In summation, the Association has gone through years of disgruntlement with the strip mines of the area and members are therefore a bit apprehensive about any new major developments. However, most of what we've encountered with this project has been positive. There's not much doubt anymore about what's happening with the environment. Currently society places a heavy emphasis on pollution measures but some individuals seem to be having an anxiety attack. They appear to want to have a pollution free environment yesterday. Industry and the environment have to coexist. The proposal of this plant promotes the most advanced technological techniques.

Thus it is the position of the Point Aconi Road Community Development Association that we are in favour of construction of this generating plant basically as proposed. Any construction such as this one will have an effect on the life style and the environment, but we feel if the project is developed and operated as proposed, any negative effects will be minimal. The Association trusts that the Nova Scotia Power Corporation and the construction companies involved will prove to be good corporate citizens of our community.

Thank you on behalf of the Point Aconi Road Community Development Association. The Council, you have a very important task to perform following these hearings, and we wish you the best of luck in carrying it out. Thank you very much.

MR. JAMES HARRISON:

Thank you, Mr. Beaton, for a very clear, interesting, and lucid comment on the concerns of the citizens of Point Aconi. Are there any questions that anyone would like to ask and direct to Mr. Beaton? Perhaps then, if there are none, we will -- Mike McGill, have you finished your question?

MS. SHIRLEY L. NICHOLSON:

Can we stand up and stretch for a few minutes?

MR. JAMES HARRISON:

All right. Panel wants to stretch for a couple of minutes. They've been sitting all day in these chairs. So maybe we'll have a recess and get back -- a couple of minutes.

OFF THE RECORD AT: 8:44 p. m./ON THE RECORD AT: 8:54 p. m.

MR. JAMES HARRISON:

Would you kindly take your seats so we can proceed please? Ladies and gentleman, we have another gentleman in the audience who would like to make some comments regarding the Point Aconi station. Mr. Chisholm from Sydney, would you kindly come forward please?

MR. KEVIN CHISHOLM:

My name is Kevin Chisholm from Sydney, and I have an engineering firm. I do energy related engineering work, and I'm also working in the process of developing equipment for the agricultural industry. And I have a wood lot at Barrachois. You'll see how this ties together. I'd like to comment on some potential environmental and spin-off benefits for the proposed Point Aconi Power Plant.

Now I've heard some of the presentations earlier, and most of them deal with concerns and questions which the presenters have. I'd like to offer some comments on certain aspects of environmental and economic benefits which could arise and suggestions to maximize the ease with which the benefits could be obtained.

Now in relation to the greenhouse effect, the greenhouse effect is caused by the increase in the atmosphere of the so-called "greenhouse gases". The "greenhouse gases" include carbon dioxide, water vapour, methane, chlorinated fluorocarbons, volatile organic compounds, etcetera. In general, these gases are generated by society in response to what we generally call progress. Society can reduce the generation of these gases through conservation efforts, new technology, and the use of energy systems which do not require fossil fuel. There is indeed a potential to reduce greenhouse gas generation through conservation measures, and there is indeed the potential to reduce the need for the Power Corporation to construct future power plants. If society does actually do something about reducing its increased demand, then the future need for additional new power plants can be delayed or postponed. Until the Power Corporation has evidence of reduced rate of growth in energy demands, it must continue to propose the construction of new power plants to satisfy the indicated demands of its customers.

Now, with respect to the amount of carbon dioxide that enters the atmosphere here with respect -- in connection with energy generation, each ton of coal burned generates about three tons of carbon dioxide. However, methane is far more effective as a greenhouse gas. One ton of methane has the greenhouse effect equivalent to about 20 tons of carbon dioxide. A quantity of wood having the same energy content of one ton of coal (That's about a ton and a half of wood.) generates about seven percent less carbon dioxide, (That's about 2.8 tons.) but far more contributory to the greenhouse effect is the methane which is generated from unburned wood.

One and a half tons of wood, when it rots on the forest floor, generates about 1200 pounds of methane in the rotting process. Because it is 20 times more effective as a greenhouse gas, methane has a greenhouse effect equivalent to about 11 and a half tons of carbon dioxide, which is the equivalent of burning about four tons of coal.

Now, I'm pulling this together in terms of two suggestions. The first suggestion, I wish to suggest for your consideration that the Power Corporation examine the material handling system for coal to make minor changes to it, if this is possible at this early stage, to allow for the introduction of local wood chips into the system at some future date. I'd like to add that wood is definitely a more expensive fuel for the Power Corporation in comparison to coal and that the Power Corporation should not actually burn wood until the people of Nova Scotia agree to accept the extra cost in order to get the environmental and economic benefits associated with the burning of wood.

Now my second comments deal with aquaculture. The proposed new power plant at Point Aconi will generate a warm water resource which can potentially serve as the basis for an aquaculture industry at the power site. And my second suggestion is as follows, I wish to make the following suggestions relating to the effluent water system for the proposed plant. Firstly, that the various water streams be piped in a manner so that they can be readily segregated in the future if required, to yield one stream from the condenser system and another stream containing all other waste waters from the plant. And a second suggestion is that the placement of the condenser water disposal system and site utilization of the area be such as to permit the relatively easy installation of a fish farm operation to utilize this warm water resource.

Now, I'd like to note that these suggestions are made in a context of opening the door to a possible new industry in the future in the event that an aquaculture operation is seriously proposed.

Extra expense by the Power Corporation in construction should be limited to implementing changes which would be prohibitively expensive at a later date. Thank you.

MR. JAMES HARRISON:

Thank you, Mr. Chisholm. Would you put -- leave a copy of your paper with Mrs. Lewis at the table at the back of the room, please?

Are there any questions or comments that anybody would like to direct to Mr. Chisholm, or any questions or comments that anybody would like to have about the proposal? Yes, there's one here. Would you kindly come to the mike, please?

MS. ALICE STUBBERT:

My name is Alice Stubbert, I'm a resident of Point Aconi. My question is, has there been any amount of studies done insofar as to the effect the plant may or may not have regarding the lobster industry for the area? My father has fished that particular area which is proposed for the plant site for approximately 50 years. What happens to his or any other fisherman's livelihood if, in fact, there is an effect on the lobster species?

MR. OSMUNDO BETANCOURT:

Yes, Mr. Chairman, we have done an extensive amount of studies of the biology, if you want, of the area where the lobster fisheries reside. Our operation, basically, is very benign with respect to the fisheries. We have also the experience with Lingan Generating Station, and we have talked to the fisherman in that area who basically have not noticed any particular change to their fishing efforts since we have been operating there for now almost 13 years.

But in addition to our studies, we -- the local residents would know that we spent quite a bit of time during the summer talking to the lobster fisherman to know about their habits and what the fishing effort is and so on, so forth. We are quite aware that this is your livelihood and I think what we would like you to understand is that the only change that we make to that water, basically, that we take in for cooling in our condensers is that just outside the discharge structure, the average temperature would be in the area of three degrees centigrade or so higher than the remaining body of water. That's about the only difference that the fisherman should notice in the future. And I think that in many areas it has occurred that some particular species of fish take advantage of that three degree differential, three degree higher temperature, to mature earlier. And I think, if anything, there may be a slightly positive effect on lobster; in other words, growing a little faster than -- those who would like to come closer, I guess, to the outflow and take advantage of that temperature.

But we are not -- power generating stations are not a chemical industry. We don't have a chemical effluent, basically. So I don't see that we put the fishery in jeopardy. And believe me, we are very aware of the fact that this is your livelihood, and we, with confidence, can say that.

MR. JAMES HARRISON:

Are there any other questions?

MR. MICHAEL McGILL:

Yeh, I have one. Did you find out the area on your cell?

MR. OSMUNDO BETANCOURT:

The exact area of the first cell we don't know, but say as an example if we were to decide that we wanted to run the first one for two years, (And I am saying that it could be a year and a half or a year, it doesn't have to be two but say we take two.) you're talking about if you build it up 20 meters, and it depends where you are. If you are in a depression in the terrain, you would build a little higher. If it is a higher terrain, you would build the cell a little smaller. So say if you were to build 20 meters up, you would need for two years approximately two hectares or five acres. If you were to build for the same two years at a height of 10 meters, you would be talking about four hectares or ten acres.

MR. MICHAEL McGILL:

The area that's shown on the map that you have reserved for landfill, that's purported to do you the life of your plant, 35 years or whatever?

MR. OSMUNDO BETANCOURT:

Correct. About 180 hectares or 450 acres.

MR. MICHAEL McGILL:

Whatever. The storm water retention pond that you were -- your retention pond that you're going to recirculate. Is the pond that you build initially the pond for the whole of the site or is it some smaller version, and what allowance do you make for storm water retention, flood frequency, that type of thing?

MR. OSMUNDO BETANCOURT:

Basically the way we want to build is we are going to avoid -- We are going to ditch such that the run-off from the land is not going to be passing over the cell. So we are going ditch such that the water goes away from the cell. But that water that is precipitated on the cell, that we collect, okay. And as we move, because obviously as we complete a cell, we move somewhere else, the pond to collect that run off from the top of that cell also moves. It's got to keep moving, so we are going to have a vessel somewhere always near the cell to collect that water and reuse it at the site for conditioning of that ash.

MR. MICHAEL McGILL:

And what allowance in that do you make for storm water frequency, ten year, five year, ten year, hundred year? You said that you didn't want any of the water getting away in the event that it was a leachate or contaminated. You wanted to contain everything there, so.

MR. OSMUNDO BETANCOURT:

Our designs are for one 24-hour storm in a hundred years.

MR. MICHAEL McGILL:

Okay. Can we go back to the plant site slide, the actual plant itself?

MR. GERALD LETHBRIDGE:

This one?

MR. MICHAEL McGILL:

Yes. It's perhaps apart from what I want to ask, maybe somewhat pertinent to the last question that was asked about -- and the last speaker's notion of requests for giving -- of delivering your warm water back. I believe you said there's two forms of treatment plant. You have a domestic waste treatment plant and then a plant discharge waste water treatment plant? Is there two? Are they two distinct facilities, one to do --

MR. GERALD LETHBRIDGE:

Yeh, that's right. There is a sewage treatment plant, which is located -- that's for domestic sewage from the plant and the waste water treatment plant which is much larger. It's a two-cell arrangement that's located here, which will take all of the drains from the plant, the drains from the water treatment plant in here that I mentioned a few minutes ago and part of the water from the sedimentation pond here and will be treated in the waste water treatment plant.

MR. MICHAEL McGILL:

And the effluent from both of those plants discharge out your same discharge?

MR. GERALD LETHBRIDGE:

After treatment, yes, the discharge from the waste water treatment plant would be to the C.W. discharge.

MR. MICHAEL McGILL:

What standards are you operating -- performance standards, if you like, for what -- your effluent that you're discharging.

MR. GERALD LETHBRIDGE:

The chemical effluent?

MR. MICHAEL McGILL:

Well, either from the sanitary or your storm water.

MR. GERALD LETHBRIDGE:

Can I ask my chemical friend over there, Mr. Betancourt?

MR. OSMUNDO BETANCOURT:

Yeh, can I have the question again?

MR. MICHAEL McGILL:

What standard are you operating by for your effluent discharge?

MR. OSMUNDO BETANCOURT:

We have stated here the standards in the report. They are basically the Codes of Practice for thermal generating stations of the Federal Government, basically, and whatever Provincial standards we may be told that -- to design for. What it is, basically, we retain the effluent, if it's is not an ongoing discharge from the treatment facility. We retain the content of those cells and treat it to neutralize it, P.H. between six and eight or in that region, a neutral P.H., and it has to have an oil --

MR. MICHAEL McGILL:

Separator?

MR. OSMUNDO BETANCOURT:

-- hydrocarbon content no higher than 10 or 15 parts per million or something in that area, and that particulate matter has to be -- suspended solids has to be below 25 parts per million, I believe. So when those standards are met, we discharge and we record that and we keep records. We operate -- we have operating -- we have been operating like this for a long time at other stations. There's nothing new there at all.

MR. MICHAEL McGILL:

Okay, and there is some provision for malfunction of, for argument's sake, your sewage treatment plant. You have some retention or whatever to -- before you --

MR. OSMUNDO BETANCOURT:

We have, basically, the retention pond, not the treatment facility, but the pond. It's got a large capacity and we have two cells in the treatment facility and we operate only one at a time, but in case that for three or four or five days we have one occupied and we get tied up or whatever the case may be, we have the other cell that we can operate. So we have a surplus capacity.

MR. MICHAEL McGILL:

Does your domestic sewage treatment plant have an overflow directly into the water or do you -- in the event that your plant fails for whatever reason, do you retain it somewhere until you're up and going again or --

MR. OSMUNDO BETANCOURT:

We can retain effluent, yes.

MR. MICHAEL McGILL:

But do you have an overflow, a direct overflow contemplated in it?

MR. OSMUNDO BETANCOURT:

Basically the plant -- yes, discharges through an overflow-- that particular plant -- I think you're missing me here. Or you're losing me here, that's what I'm trying to say.

MR. TERRENCE MACDONALD:

(short answer put but inaudible)

MR. OSMUNDO BETANCOURT:

We can retain the effluent until the problem can be fixed.

MR. MICHAEL McGILL:

I had one more, there's a -- in your report that describes your layout that you have there, there's also, for lack of a better term, a chart diagram that shows where all of your outflows go and you talk about a perimeter ditch dug, I believe, to pick up your non-contaminated storm water, I assume from your parking lots, that type of thing, fresh water that's uncontaminated. But I'm not clear from that map, that yellow area that's off on the right, is that some form of a storm water ditch or -- and a pond or -- What do you do with your fresh water, that natural rainfall that's uncontaminated from the site? It seems to indicate from the chart that it goes out the same overflow, but I wasn't sure what that yellow area on your map indicates.

MR. GERALD LETHBRIDGE:

Yes, there is a small waterway that presently comes down. In fact, it's going to have to be re-diverted slightly and this will be just normal water from the surrounding drainage area. This ditch down here that's surrounded by the yellow is independent of the ditching around the coal pile so that the coal pile leachate along with the limestone will be directed here and any of the drainage area that this stream picks up will go directly out here to what's called Long Pond.

Now, on the other side of the plant there will be a similar clear water discharge. It's not shown on this diagram but it will go out here somewhere. Likely things like the drainage, the roof drains and so on which basically will be pure water, will be -- will not be directed towards the waste water treatment plant because, you know, we don't want to treat water that doesn't have to be treated, so drains like that, that are pure, will be directed out the other way.

MR. MICHAEL McGILL:

I don't for a minute pretend to know what's good for a lobster in its environment. I don't have any feel for that but the experience you have with Lingan, is there a lobster fishery there that --

MR. OSMUNDO BETANCOURT:

Yes, at the Lingan Generating Station, there is a lobster fishery off the coast.

MR. MICHAEL McGILL.:

I understand from your report that you've met with the local lobster people and they seem quite content with your proposal and you did, in fact, move your outfall.

MR. OSMUNDO BETANCOURT:

What I'm saying is, and I think it is through people at our plant, we have talked to them and I personally haven't spoken to them as I have with the people here.

MR. MICHAEL McGILL:

What people?

MR. OSMUNDO BETANCOURT:

Point Aconi, you mean, or Lingan?

MR. MICHAEL McGILL:

Point Aconi.

MR. OSMUNDO BETANCOURT:

Point Aconi, yes.

MR. MICHAEL McGILL:

And part of your placement of your outfall is due to some of your discussions with them?

MR. OSMUNDO BETANCOURT:

We -- Exactly. We had a conversation to basically talk about two different locations for the outfall, whichever was of more convenience to the fishermen of the area. We agreed on that location with the fishermen. We sought their input.

MR. MICHAEL McGILL:

So assumably besides your practical experience at Lingan, there is some evidence around to support your statement that the raise in temperature won't affect the lobsters' growing habitat?

MR. OSMUNDO BETANCOURT:

It should -- I think that the correct statement should be that if it affects it, it would be -- the kind of temperature we're talking is to perhaps to improve it rather than in a negative way. That is, I guess, in any other species you would see anywhere where there is a power station, there are more birds, for instance, in the winter around the power station than would be in any other places because they take advantage of that small increase in temperature and it keeps them maybe longer in the winter than otherwise they would be. So that's the way, I guess, those biological species react to that. I think that they are like us, they like the warmth.

MR. MICHAEL McGILL:

Can I go back to the map here. You're unloading your coal and your limestone. I understand that there is a couple of hoppers that trucks coming in five days a week, will unload into that and that will go directly into the plant.

MR. GERALD LETHBRIDGE:

Two ground-hoppers there, yes.

MR. MICHAEL McGILL:

Yeh, so on the normal schedule, Monday to Friday, type of thing, the trucks dump directly into the hoppers.

MR. GERALD LETHBRIDGE:

That's correct and since they'll only be hauling for five days, there will be -- some of those trucks will have to discharge on what we call the live storage pile, here. And then on the weekend, we'll be using mobile equipment to push the coal into the nearest hopper from the side.

MR. MICHAEL McGILL:

What's the mobile equipment, bulldozer, loader?

MR. GERALD LETHBRIDGE:

It will be dozers or rubber tired -- likely rubber-tired loaders, front-end loaders but there are special side-boards put on the loaders to increase the capacity and so on. But it depends on the mobility of the equipment and what we find is that rubber-tired is, it's quicker and, in fact, better than track machines.

MR. MICHAEL McGILL:

And how do you propose to control the dust on moving that type of coal -- in that instance, moving coal in that instance?

MR. GERALD LETHBRIDGE:

Well as we previously indicated, the dead storage, which will be basically over here, will be covered with some sort of an oil emulsion of some kind or other. The live storage, anytime when the conditions are such that the coal that we receive which, I might add, is relatively coarse which would tend to keep the dust down. But anytime if there is a problem, we'll have either mobile equipment or water sprays of some kind to spray on the coal area.

I also should mention that insofar as the roadway is concerned here, we have had success in using industrial brush-type cleaners and if that would be necessary, we'd use that here as well.

MR. MICHAEL McGILL:

The oil emulsion you're proposing or whatever, if it's an oil base, won't it compound your waste water treatment problems?

MR. GERALD LETHBRIDGE:

Sorry, I missed the question.

MR. MICHAEL McGILL:

The oil emulsion you're proposing on your dead pile for controlling your dust, won't that compound your waste water treatment problems?

MR. GERALD LETHBRIDGE:

Whatever water that falls on the dead storage coal pile will just run off to the -- down the ditching into the sedimentation pond. Now if you didn't do that, then the storage pile, presumably, would saturate and once it saturated, it would then just run off.

MR. MICHAEL McGILL:

I guess my point is that if you're using an oil-based dust control or whatever, aren't you compounding your effluent problem from what you pick up off in run off?

MR. GERALD LETHBRIDGE:

From what we pick up off --

MR. MICHAEL McGILL:

The run off off your dead storage pile that's got an oil-based dust control agent on it is going to end up in your sedimentation pond and eventually go out to your waste water treatment process, is it not, which eventually will go back into the water and you'll have to remove that before you can let it go back into the ocean, won't you?

MR. GERALD LETHBRIDGE:

Yeh, it's -- there are different types of emulsions that can be used and it will be something that, you know, obviously will minimize that particular potential. Maybe I could ask, Osmundo, do you know exactly, I think it is -- it does say in the report the specific type -- Well, it may not be the specific type, generic type of covering that will be used?

MR. OSMUNDO BETANCOURT:

Most of the dust suppression that we do at this point, we do with water and I think that we would have to use something more than water, if we had a very stubborn problem. But most of the time we can deal with that problem with water, and compaction. Compaction is the main thing. The dead pile, when it is well compacted, it doesn't present a dust problem.

MR. MICHAEL McGILL:

I think I'm done with the questions on your map, if you wanted to sit down again.

MR. JAMES HARRISON:

Finished with the map?

MR. MICHAEL McGILL:

Yeh, I'm finished with the map. I've got a couple of more questions Jim, but I don't think we need the map. There was a question addressed this morning and I believe it was directed at us and I think the Power Corporation could probably answer it better than us, but I might broaden the scope a little. As I recall the question, it was, what ability does the Power Corporation have to amend its contract in the burner that you bought, or ordered or what have you? And I guess from my point of view, I guess that question is pertinent, as well as, what ability you have to amend your design for any recommendation that may come out as a result of this hearing and if you want to take a shot at that.

MR. GERALD LETHBRIDGE:

Yeh, there was a question raised to that extent this morning and there was what appeared to be an insinuation that because we have a contract signed for this turn-key contract, that there is no opportunity to change and that the whole process is a fait accompli and so on and that of course is not correct. We have already, I guess prior to the signing of the contract and even subsequent to the signing of the contract, made significant changes to our design and we have the opportunity and the capability of doing this in the contract. We have made a number of changes to this point in time, with our engineers for the project, and certainly there is provision in the contract to make changes as necessary to accommodate whatever environmental, or indeed, other requirements from here on in.

One of the interesting things I did note to the proceedings today was that whereas the people were concerned that the contract was signed, they were also very concerned about the guarantees that we may or may not have been given, and I'm sure the Council would be aware that it's very difficult -- it would be very difficult to reach the stage where we are now, where we do have information and to reach the stage where we are given guarantees by a company without having a contract to do that. So it puts us in a very thin -- we have to walk a pretty fine line in terms of the signing of the contract and we do have, as I say, provision to change that but because the contract is signed, we are now in a position that we can definitively indicate what the guarantee levels are.

MR. MICHAEL McGILL:

What's your fall back in the event that some of the guarantees don't prove out? I'm thinking of the statement that was in the press that was alluded to this morning. If it takes more lime to get your 90 percent reduction or if you don't get your 90 percent reduction in sulfur dioxide, (I believe that was one of the guarantees you've talked of.) where do you fit in that scenario?

MR. GERALD LETHBRIDGE:

Yes, the remedy is that the proponent or the boiler supplier or indeed in respect of what we're talking about, the turn-key contractor will be required to take whatever measures are necessary to effect changes to insure that they do get the design guarantee levels.

MR. MICHAEL McGILL:

How long does your guarantee go in the length of the operation of the plant?

MR. GERALD LETHBRIDGE:

Well, there's no limit on the guarantee. If indeed they do not meet output or they do not meet calcium sulfur ratio or efficiencies or whatever, then they will be required to stay there and do whatever is necessary, at their cost, until they get the situation to the point where it meets the guarantee.

Now, I think that I would have to complement or supplement that statement by saying that obviously, these people are not going to make those guarantees if indeed there is serious question in their mind about whether they can achieve them. There has been, I suppose, a lot of discussion about the Chatham plant and its ability to perform and so on. There were some problems with the Chatham plant and the initial operation but they have made modifications, carried out remedies and as I indicated earlier, they're reasonably satisfied with the operation of that plant now and this is what we find, in fact, with a lot of Circulating Fluidized Bed plants around the world.

MR. MICHAEL McGILL:

One more thing on the bagger you referred to that takes out the final shot of ash or whatever. Is there more than one? Is there a provision for back up or can somebody expect down the road if that breaks down, to get a dose of ash some day? I don't know how your operation works but where does it leave the people in the area? Do they get a dose of ash someday just because your bagger has broke down?

MR. GERALD LETHBRIDGE:

I think one of the areas that we're becoming more and more confident about is in the ash collection in the bag house. I know that from some experience where I was on the board of the Chatham Development. Initially they had quite a bit of problems with the actual cloth or fiberglass design. But in talking with Mr. MacDonald the other day, he indicated now they have over 4,000 hours on the most recent materials that they put in. So with the experience that they have and the experience that has been collected from a number of Circulating Fluidized Bed installations around the world, that we don't see that there's going to be any difficulty with that.

And 99.7 percent is what the expected collection efficiency would be. That will be essentially a clear stack in so far as opacity is concerned. You will be able to see right through it.

If there are problems with some of the bags, we'll have to go in and replace them but that will still give a very clear stack with little potential for problems from dust.

MR. MICHAEL McGILL:

I'm not sure you answered the question, whether there was physically some back up arrangement.

MR. OSMUNDO BETANCOURT:

Basically bag houses, they are not just the one chamber. Bag houses operate as a number of units. You lose one out of twelve, you have eleven remaining so it is not that everything goes down. That's the way bag houses are built.

MR. MICHAEL McGILL:

I think that's all I have for now, but I still reserve the right to ask.

MR. OSMUNDO BETANCOURT:

Mr. Chairman, may I take this opportunity here -- I -- there were a couple of questions that were raised by Mr. Beaton that I would like to -- if I -- if you allow me to.

MR. JAMES HARRISON:

Go ahead, and maybe you can repeat the question and then give your response.

MR. OSMUNDO BETANCOURT TO MR. BEATON:

I will do that, thank you. Mr. Beaton, you had a number of them. If I missed any, you may want to remind me but you first, I guess, indicated that you -- you're concerned about the water supply and a back-up system. I'm going to link that one together with your last comment that was to keep communications open and to have some kind of a -- some kind of communication, basically, set up between ourselves and yourselves. Let me ask you this question, i wouldn't want to -- I've already indicated to you what we plan to do with respect to the water supply. We want to come back and see what we can do to insure that we have-- perhaps, we can assure you in a more definitive way of the effect of the ground water supply to our plant. Is there any way that we can combine that communication with any other issue that there may be? In other words, the people from Millville and right from here and so on, that we would have maybe one individual from each of the small community representing the community and we could have a small working group? Is that-- would that be a reasonable thing to do? Large groups don't solve too many problems, but if we have every community with the interest of the rest of them, we can work -- we can basically discuss just about anything, you know.

This morning there was a question raised of monitoring the air quality, for instance, and you know, we could talk about all those things but maybe at the same time, things that are common to all the small communities in this area. Is that a reasonable thing?

MR. KEVIN BEATON:

Yes, I think that would be very easy for us to set up. I don't see any problem with that. We can at a time that's convenient to you folks -- and we can very easily arrange it. I see no problem.

MR. OSMUNDO BETANCOURT:

Okay, then what I'll do then is on the water supply side, I won't try to provide you here an answer today. We'll have to work on that one.

You mentioned the beach. I guess you're talking about the beach across from the Morrison Pond.

MR. KEVIN BEATON:

Yes.

MR. OSMUNDO BETANCOURT:

Okay, that beach will remain available. We are not going to do anything on that beach. I -- There was a question on the lobster fishery and the protection of that resource. I think I spoke to that before and you were expressing a concern about the Mill Pond Road that could be cut off, it won't. That will remain available to the use of the community and also the extension of 162 is going to be open also for the public to use.

MR. KEVIN BEATON:

Very good. It's good to hear that -- those comments in public. Sometimes we, you know, in meetings and that, we get the feel of it's going to be but when it comes out in public, then you've said it and it should be. If --

MR. OSMUNDO BETANCOURT:

Are you trying to say to me that if it doesn't happen, I shouldn't return here?

MR. KEVIN BEATON:

Don't mess with our water. Could -- Osmundo, while I'm here, just a furtherance on the beach, tying it in with the lobster fishermen, is there -- or can there be some sort of an arrangement in the event of a storm and we have a north-easter or northerly storm, it's going to drive lobster traps up on the beach. Is there some sort of -- or this may be something we can discuss that what you're talking about setting up for a little later, but is there any kind of way that the fishermen can have access in front of the plant to pick up any traps that, you know, may beach there?

MR. OSMUNDO BETANCOURT:

I'll tell you what I'll do, Phil Sidebottom used to be -- work at the Lingan Generating Station and probably they may have had some experience of that nature there. Maybe he wants to speak to that.

MR. PHIL SIDEBOTTOM:

Sitting here all day saying nothing and I get a chance to say something at this time of night.

What I'd like to say is that at Lingan we very frequently did experience storms there. We did permit fishermen to come and collect their gear off the beaches. It is no problem to the

Power Corporation and I wouldn't anticipate any difference here.

MR. JAMES HARRISON:

Now are there any further questions or comments that anyone else -- Yes, sir.

MR. TED MARSH:

My name is Ted Marsh. I've two questions, one has to do with coal stockpiling.

In the event of a strike, Mr. Chairman, or a down turn in production at Prince Mine, how long will the stockpile last and how much of a stockpile would there -- would there be there in tonnage? And in the event of a long down turn in Prince Mine and the stockpile is depleted, is there another source for coal availability? Is it trucked in or whatever? And secondly, could we have some comment on the noise level of the proposed plant? A number of residents mentioned that to me during the break. So on those two topics please.

MR. GERALD LETHBRIDGE:

Insofar as the coal storage is concerned, for the first unit we expect that the dead storage there will be 120,000 tonnes, and I believe that will provide for about six weeks, which is pretty close to average for what we provide at all of our plants. And we feel that six weeks is enough to account for any disruption in service. If there is some specific problem associated with the Prince Mine, again because the C.F.B. has the potential -- has the potential for burning different types of coal and so on, there is -- as long as we could get coal from one or two of the other mines, Lingan or the Phalen Mine, we would under those circumstances bring the coal over. Now obviously that would be pretty highly unlikely, but if, indeed, that happened, that would be the case.

MR. JAMES HARRISON:

The other question was relating the noise protection.

MR. OSMUNDO BETANCOURT:

I'll speak to that, Mr. Chairman. I just wanted to give you a feeling. We have to -- we will be designing to meet provincial guidelines which are the equivalent noise of 65 decibel D.B.A. during the hours of 7:00 o'clock in the morning to 11 -- No, to 7:00 o'clock in the evening, 60 decibel D.B.A. from 7:00 in the evening until 11:00 in the evening, and 55 decibel D.B.A. from 11:00 in the evening to 7:00 o'clock in the morning.

Just to give you an idea, (Those numbers may not mean anything to you.) if you are a metre away from a diesel truck, the level will be about 90 decibels, 90 D.B.A. A ringing alarm clock would give you approximately 80, and a conversation would be about 65, so the requirement that we have to meet at the closest receptor, meaning a house or a school or something like that, next to the plant would be 65 in the day, 60 in the evening, 55 at night.

MR. JAMES HARRISON:

Is the decibel level at the plant boundary --

MR. OSMUNDO BETANCOURT:

It's at -- The way the Province has defined it is at the next receptor, receptor meaning a school or a house or a store or a particular facility where you would be inconveniencing somebody, I guess, with the noise.

MR. JAMES HARRISON:

Do those answer your questions? Are there any other comment?

There appear to be none, so I would like to thank you all on behalf of the Environmental Control Council for being here. We've certainly learned a lot. We've learned your concerns and I hope that you have been able to get answers to your concerns.

As I mentioned, the procedure is that our panel will sit down and go through what we've learned through the Environmental Assessment Report again and the papers we have, the presentations, and come up with our opinion as to the environmental suitability of the whole project and we'll make our report to the Minister of the Environment.

So with those comments, I end the meeting and thank you again for being here.

HEARING CONCLUDED AT: 9:41 p.m.

COURT REPORTER'S CERTIFICATE

I, Judith M. Robson, an Official Court Reporter, do certify that the transcript hereto annexed is true and accurate of the matters dealt with at the **POINT ACONI PUBLIC CONSULTATION MEETINGS**, for the Nova Scotia Environment Control Council, as given on Wednesday, January 17, 1990, at Point Aconi, in the County of Cape Breton, Province of Nova Scotia, recorded on tape, transcribed and checked on CAT (computer-assisted transcription) by staff of Sydney Discovery Services, and that same **is valid only** if it bears my raised seal.

Judith M. Robson
Official Court Reporter
Registered Professional Reporter

Sydney Discovery Services
January 19, 1990